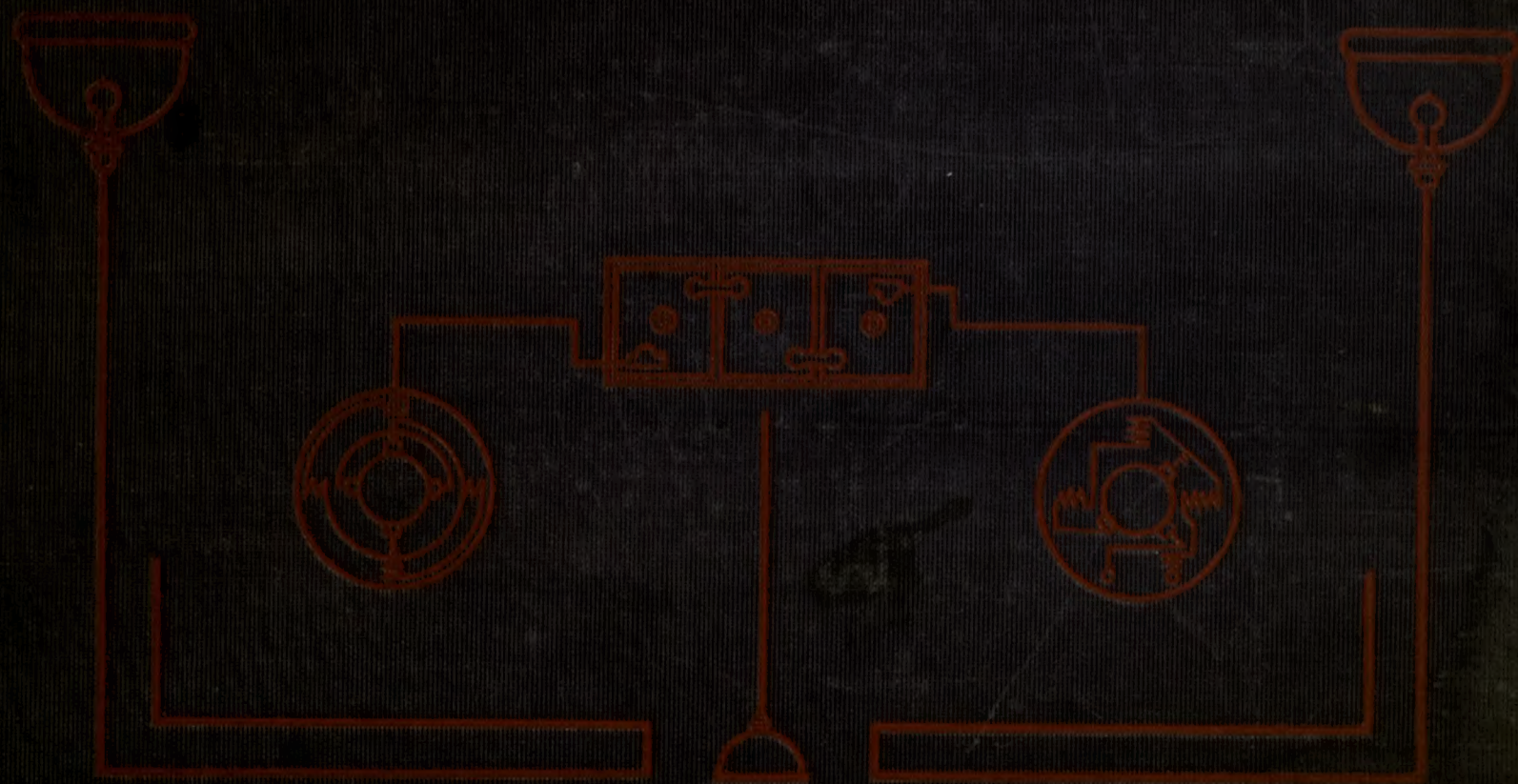
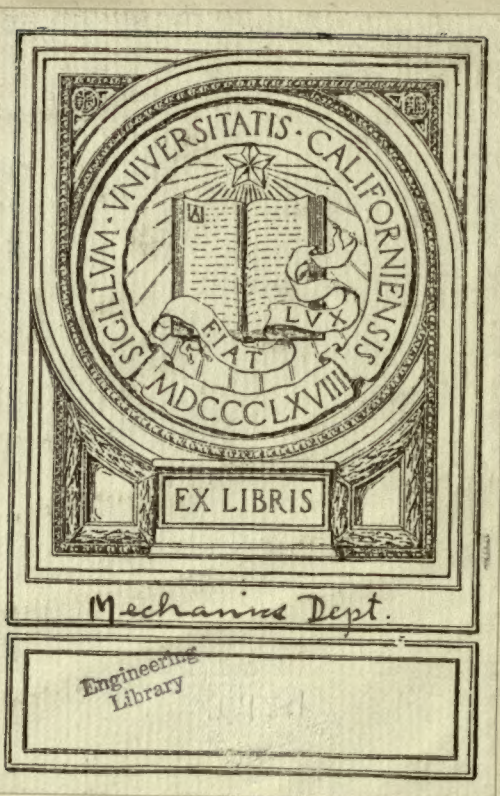


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# AUTOMOTIVE WIRING MANUAL







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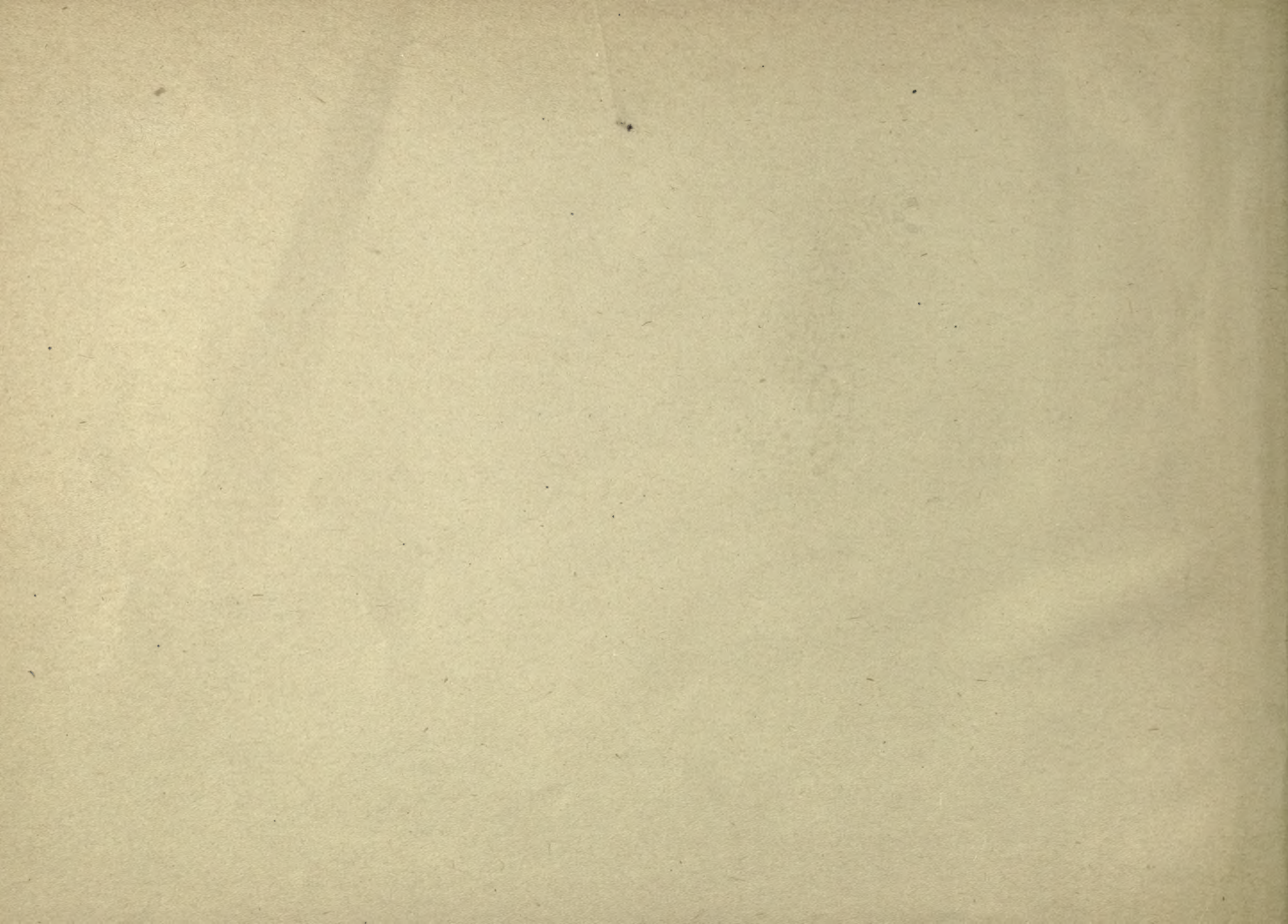














# AUTOMOTIVE WIRING MANUAL

The Original and Official Collection of Blueprint Wiring Diagrams

Contains Guaranteed Correct Circuit Diagrams Covering all Motor Cars and Trucks from 1912 to 1920 inclusive; Internal Wiring Connections of Generators, Starting Motors, Controllers, etc., of all Electric Starting and Lighting Systems; Practical Instructions on Testing, Repairing and Maintenance of Storage Batteries, Generators, Motors, Coils, etc.

By HARRY LORIN WELLS

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1920 EDITION

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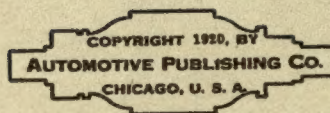
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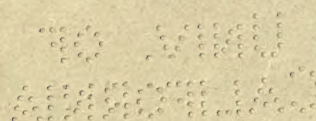
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# F O R E W O R D

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O those engaged in the repair and upkeep of automotive electrical equipment, this Manual will prove of inestimable value. Its use will greatly simplify the location and repair of electrical troubles, thus rendering prompt and efficient service to the car owner.

This Manual is the original and official compilation of blueprint wiring diagrams in book form. All diagrams are authentic and accurate, the sources or data from which made being the original shop or working blueprints of the car and equipment manufacturers, and not photographic reproductions from instruction books, trade periodicals, etc., the usual source from which inaccurate diagrams are frequently compiled and offered to the trade.

By reading the General Instructions one can understand how easily electrical circuits may be traced, and appreciate the simplicity of trouble finding, making tests, etc.

Acknowledgment is hereby made to the car and equipment manufacturers, who very courteously furnished data and other aid in the compilation of this Manual.

THE PUBLISHERS.



# R O B E R T O W O R D

The first of these is the fact that the work of the  
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# CIRCUIT DIAGRAMS OF CARS

| Car                     | Year           | Model                   | Starting & Lighting System | Generator No. or Type | Battery Voltage | Ignition System | Coil Type or No. | Wiring | Page |
|-------------------------|----------------|-------------------------|----------------------------|-----------------------|-----------------|-----------------|------------------|--------|------|
| Abbott-Detroit.         | 1916-1917.     | 6-44.                   | Remy.                      | 254.                  | 6.              | Remy.           |                  | S. C.  | 1    |
| Acme Truck.             | 1919-1920.     | All Models.             | Gray & Davis.              |                       | 12.             | Eisemann.       | Mag.             | S. C.  | 2    |
| Ahrens-Fox Fire Engine. |                | All Models.             | Delco.                     | MG-79.                | 12.             | Delco.          | 2169.            | S. C.  | 3    |
| Allen.                  | 1914-1915.     | 34 and 33.              | Westinghouse.              | 202.                  | 6.              | West.           | 202.             | S. C.  | 4    |
| Allen.                  | 1914-1915.     | 35.                     | Auto Lite.                 | G. & GA.              | 6.              | Conn.           | E.               | D. C.  | 5    |
| Allen.                  | 1916.          | 37 Dim. Bulbs.          | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 6    |
| Allen.                  | 1916.          | 37 Rest. Dim.           | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 7    |
| Allen.                  | 1917.          | Classic.                | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 8    |
| Allen.                  | 1918-1919.     | 41 and 18-A.            | Auto Lite.                 | GH.                   | 6.              | Conn.           | GA.              | S. C.  | 9    |
| Allen.                  | 1919-1920.     | 43.                     | Auto Lite.                 | GH.                   | 6.              | Conn.           | GA.              | S. C.  | 10   |
| Alter.                  | 1915.          |                         | Remy.                      | 129-B.                | 12.             | Remy.           |                  | S. C.  | 11   |
| American.               | 1914.          | Underslung.             | Disco.                     |                       | 12.             |                 |                  | D. C.  | 12   |
| American.               | 1917-1918.     | A.                      | Westinghouse.              | 760.                  | 6.              | A K.            | CC.              | S. C.  | 13   |
| American.               | 1920.          | B.                      | Westinghouse.              | 760.                  | 6.              | A K.            | CC.              | S. C.  | 14   |
| Anderson.               | 1916.          | 100 AB.                 | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 15   |
| Anderson.               | 1919-1920.     | 20.                     | Westinghouse.              | 760.                  | 6.              | Remy.           |                  | S. C.  | 16   |
| Apperson.               | 1913.          |                         | Ward-Leonard.              |                       | 6.              | Bosch.          | Mag.             | D. C.  | 17   |
| Apperson.               | 1913.          | 4-45 and 4-55.          | Esterline.                 | HG.                   | 6.              | Bosch.          | Mag.             | D. C.  | 18   |
| Apperson.               | 1913.          | 55 and 45.              | Gray & Davis.              | G1.                   | 6.              | Bosch.          | Mag.             | D. C.  | 19   |
| Apperson.               | 1914.          | 4-45, 6-45, 6-58.       | Bijur.                     | K620.                 | 6.              | Bosch.          | Mag.             | D. C.  | 20   |
| Apperson.               | 1915.          | 4-40 and 6-45.          | Bijur.                     | L621.                 | 6.              | Remy.           | 175.             | D. C.  | 21   |
| Apperson.               | 1915.          |                         | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 22   |
| Apperson.               | 1916.          | 6-48, 8-58.             | Westinghouse.              | 208.                  | 6.              | Remy.           | 175.             | S. C.  | 23   |
| Apperson.               | 1916-1917.     | 6-48, 8-58, 8-17, 6-17. | Bijur.                     | L61.                  | 6.              | Remy.           | 175.             | D. C.  | 24   |
| Apperson.               | 1918-1919.     | 8-18 A.                 | Bijur.                     | M255.                 | 6.              | Remy.           | 176.             | S. C.  | 25   |
| Apperson.               | 1918-19-20.    | 8-18 A, 8-19, 8-20.     | Bijur.                     | M255.                 | 6.              | Remy.           |                  | D. C.  | 26   |
| Apperson.               | 1919-1920.     | 8-18.                   | Bijur.                     | M255.                 | 6.              | Remy.           |                  | D. C.  | 27   |
| Atterbury Truck.        | 1920.          | U. S. A. Class "B"      | Delco.                     | 139.                  | 6.              | Delco.          |                  | S. C.  | 28   |
| Auburn.                 | 1913-14-15.    |                         | Remy.                      | SL.                   | 6.              | Bosch.          | Mag.             | D. C.  | 29   |
| Auburn.                 | 1914.          | 4-40, 4-41, 6-45, 6-46. | Remy.                      | SL.                   | 6.              | Bosch.          | Mag.             | D. C.  | 30   |
| Auburn.                 | 1915.          | 6-40.                   | Delco.                     | MG-58.                | 6.              | Delco.          | 2111.            | S. C.  | 31   |
| Auburn.                 | 1916.          | 4-38, 6-38, 6-40.       | Remy.                      | 166, 240, 241.        | 6.              | Remy.           |                  | S. C.  | 32   |
| Auburn.                 | 1916.          | 6-40 A.                 | Delco.                     | MG-73.                | 6.              | Delco.          | 2120.            | S. C.  | 33   |
| Auburn.                 | 1918.          | 6-44.                   | Delco.                     | MG-83.                | 6.              | Delco.          | 2142.            | S. C.  | 34   |
| Auburn.                 | 1917-18-19-20. | 6-39.                   | Remy.                      | 168-E-230C.           | 6.              | Remy.           |                  | S. C.  | 35   |
| Austin.                 | 1917-1918.     | HK12.                   | Delco.                     | G-87.                 | 6.              | Delco.          | 2123.            | S. C.  | 36   |
| Bell.                   | 1916.          | 16.                     | Ward-Leonard.              | R M.                  | 12.             | A K.            | H.               | S. C.  | 37   |
| Bethlehem Truck.        | 1918-19-20.    | DX, EX, FX.             | Gray & Davis.              |                       | 6.              | G & D.          |                  | S. C.  | 38   |
| Biddle.                 | 1919-1920.     | All Models.             | Gray & Davis.              | 220.                  | 6.              | Conn.           |                  | S. C.  | 39   |
| Bour-Davis.             | 1918-19-20.    | All Models.             | Remy.                      | 166, 240, 241.        | 6.              | Remy.           |                  | S. C.  | 40   |



# CIRCUIT DIAGRAMS OF CARS—Continued

| Car          | Year       | Model                         | Starting & Lighting System | Generator No. or Type | Battery Voltage | Ignition System | Coil Type or No. | Wiring | Page |
|--------------|------------|-------------------------------|----------------------------|-----------------------|-----------------|-----------------|------------------|--------|------|
| Brewster.    | 1920.      | 91.                           | U. S. L.                   | E-196.                | 12.             | Bosch.          | Mag.             | S. C.  | 41   |
| Briscoe.     | 1915.      | B-15.                         | Splitdorf-Apelco           | A25-28-29.            | 12.             | G. & D.         |                  | S. C.  | 42   |
| Briscoe.     | 1916.      | 4-38.                         | Splitdorf-Apelco           | A25-28-29.            | 12.             | Conn.           | GO.              | S. C.  | 43   |
| Briscoe.     | 1916.      | 8-38.                         | Splitdorf-Apelco           | A25-28-29.            | 12.             | Remy            |                  | S. C.  | 44   |
| Briscoe.     | 1917-18-19 | 4-24.                         | Splitdorf-Apelco           | GH.                   | 6.              | Conn.           | GA.              | S. C.  | 45   |
| Briscoe.     | 1920.      | 4-34.                         | Auto Lite.                 | GH.                   | 6.              | Conn.           | GA.              | S. C.  | 46   |
| Brown.       | 1916.      |                               | Allis-Chalmers.            | SH.                   | 6.              | Conn.           | GO.              | S. C.  | 47   |
| Buick.       | 1914.      | B-24, B-25.                   | Delco.                     | MG 26-40.             | 6.              | Delco.          | 2107.            | S. C.  | 48   |
| Buick.       | 1914.      | B-36, B-37.                   | Delco.                     | MG 33-42.             | 6.              | Delco.          | 2107.            | S. C.  | 49   |
| Buick.       | 1915.      | C-24, C-25.                   | Delco.                     | MG 56.                | 6.              | Delco.          | 2111.            | S. C.  | 50   |
| Buick.       | 1915.      | C-36, 37, 54, 55.             | Delco.                     | MG 51.                | 6.              | Delco.          | 2111.            | S. C.  | 51   |
| Buick.       | 1916.      | 54, 55.                       | Delco.                     | MG 69.                | 6.              | Delco.          | 2123-30.         | S. C.  | 52   |
| Buick.       | 1916.      | D-44, 45, 54, 55.             | Delco.                     | MG 69.                | 6.              | Delco.          | 2123.            | S. C.  | 53   |
| Buick.       | 1917.      | D-6, 44, 45, 46, 47.          | Delco.                     | MG 70.                | 6.              | Delco.          | 2130.            | S. C.  | 53   |
| Buick.       | 1917.      | D-34, 35.                     | Delco.                     | MG 94.                | 6.              | Delco.          | 2138.            | S. C.  | 54   |
| Buick.       | 1918.      | E-34, 35.                     | Delco.                     | MG 115.               | 6.              | Delco.          | 2138.            | S. C.  | 54   |
| Buick.       | 1918.      | E-Six-44, 45, 46, 47, 49, 50. | Delco.                     | MG 117.               | 6.              | Delco.          | 2157.            | S. C.  | 55   |
| Buick.       | 1919.      | H Series.                     | Delco.                     | MG 117.               | 6.              | Delco.          | 2157.            | S. C.  | 55   |
| Buick.       | 1920.      | K.                            | Delco.                     | MG 117.               | 6.              | Delco.          | 2157.            | S. C.  | 56   |
| Buick Truck. | 1915.      | C-4.                          | Delco.                     | MG 61-71.             | 6.              | Delco.          | 2111.            | S. C.  | 57   |
| Buick Truck. | 1916.      | D-4.                          | Delco.                     | MG 76.                | 6.              | Delco.          | 2123-30.         | S. C.  | 58   |
| Cadillac.    | 1912.      |                               | Delco.                     | MG 1.                 | 6-24.           | Delco.          | 2022-45.         | D. C.  | 59   |
| Cadillac.    | 1913.      |                               | Delco.                     | MG 4.                 | 6.              | Delco.          | 2092-3.          | D. C.  | 60   |
| Cadillac.    | 1914.      |                               | Delco.                     | MG 24.                | 6.              | Delco.          | 2104.            | S. C.  | 61   |
| Cadillac.    | 1915.      | Type 51.                      | Delco.                     | MG 44.                | 6.              | Delco.          | 2115.            | S. C.  | 62   |
| Cadillac.    | 1916.      | Type 53.                      | Delco.                     | MG 78.                | 6.              | Delco.          | 2115.            | S. C.  | 63   |
| Cadillac.    | 1917-18-19 | 55 and 57.                    | Delco.                     | MG 98.                | 6.              | Delco.          | 2115.            | S. C.  | 64   |
| Cadillac.    | 1920.      | 59.                           | Delco.                     | MG 162.               | 6.              | Delco.          | 2115.            | S. C.  | 65   |
| Cartercar.   | 1914.      | 7.                            | Delco.                     | MG 32.                | 6.              | Delco.          | 2102.            | S. C.  | 66   |
| Cartercar.   | 1915.      | 9.                            | Delco.                     | MG 53.                | 6.              | Delco.          | 2111.            | S. C.  | 67   |
| Case.        | 1914-1915. | O.                            | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 68   |
| Case.        | 1914-1915. | R.                            | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 69   |
| Case.        | 1914-1915. | S.                            | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 70   |
| Case.        | 1915.      | R.                            | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 71   |
| Case.        | 1916.      | T.                            | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 72   |
| Case.        | 1917.      | T.                            | Auto Lite.                 | GH.                   | 6.              | Conn.           | GA.              | S. C.  | 73   |
| Case.        | 1918.      | U.                            | Westinghouse.              | 760.                  | 6.              | West.           | V.               | S. C.  | 74   |
| Case.        | 1920.      | V.                            | Westinghouse.              | 760.                  | 6.              | Bosch.          | Mag.             | S. C.  | 75   |
| Case.        | 1920.      | V.                            | Westinghouse.              | 760.                  | 6.              | Delco.          |                  | S. C.  | 76   |
| Chalmers.    | 1913-1914. | 17, 18, 19.                   | Gray & Davis.              | G.                    | 6.              | Bosch.          | Mag.             | D. C.  | 77   |
| Chalmers.    | 1914.      | 24.                           | Entz.                      | 24.                   | 18.             | Bosch.          | Mag.             | D. C.  | 78   |



## CIRCUIT DIAGRAMS OF CARS—Continued

| Car                  | Year            | Model                            | Starting & Lighting System | Generator No. or Type | Battery Voltage | Ignition System | Coil Type or No.      | Wiring    | Page |
|----------------------|-----------------|----------------------------------|----------------------------|-----------------------|-----------------|-----------------|-----------------------|-----------|------|
| Chalmers.....        | 1915.....       | 26.....                          | Ents.....                  | 26.....               | 18...           | A. K.....       | K2.....               | D. C..... | 79   |
| Chalmers.....        | 1915.....       | 29.....                          | Ents.....                  | 29-268.....           | 18...           | A. K.....       | K2.....               | D. C..... | 80   |
| Chalmers.....        | 1915-1916.....  | 32, 6-40.....                    | Westinghouse.....          | 208.....              | 6...            | A. K.....       | K2.....               | S. C..... | 81   |
| Chalmers.....        | 1916.....       | 35.....                          | Westinghouse.....          | 760.....              | 6...            | Remy.....       | 171.....              | S. C..... | 82   |
| Chalmers Six 30..... | 1917-1918.....  | 35-A, 35-B.....                  | Westinghouse.....          | 760.....              | 6...            | Remy.....       | 171.....              | S. C..... | 83   |
| Chalmers.....        | 1818-1919.....  | Early Models.....                | Westinghouse.....          | 760.....              | 6...            | Remy.....       | .....                 | S. C..... | 84   |
| Chalmers.....        | 1919.....       | 35-C.....                        | Westinghouse.....          | 760.....              | 6...            | Remy.....       | .....                 | S. C..... | 84   |
| Chalmers.....        | 1920.....       | 630.....                         | Westinghouse.....          | .....                 | 6...            | Remy.....       | .....                 | S. C..... | 85   |
| Chandler.....        | 1913.....       | .....                            | Westinghouse.....          | 208.....              | 6...            | Bosch.....      | Mag.....              | S. C..... | 86   |
| Chandler.....        | 1914.....       | .....                            | Westinghouse.....          | 208.....              | 6...            | Bosch.....      | Mag.....              | S. C..... | 87   |
| Chandler.....        | 1914-1915.....  | .....                            | Gray & Davis.....          | 220.....              | 6...            | Bosch.....      | Mag.....              | S. C..... | 88   |
| Chandler.....        | 1916.....       | .....                            | Westinghouse.....          | 208.....              | 6...            | Bosch.....      | Mag.....              | S. C..... | 89   |
| Chandler.....        | 1916.....       | 17.....                          | Gray & Davis.....          | 220.....              | 6...            | Bosch.....      | Mag.....              | S. C..... | 90   |
| Chandler.....        | 1917-18-19..... | Light Wt. Six.....               | Gray & Davis.....          | 220.....              | 6...            | Bosch.....      | Mag.....              | S. C..... | 91   |
| Chandler.....        | 1920.....       | .....                            | Gray & Davis.....          | .....                 | 6...            | Bosch.....      | Mag.....              | S. C..... | 92   |
| Chevrolet.....       | 1915.....       | H-2, H-3, H-4, Early Models..... | Auto Lite.....             | GG.....               | 6...            | Conn.....       | GO.....               | S. C..... | 93   |
| Chevrolet.....       | 1915.....       | H-2, H-3, H-4 Mid Season ..      | Auto Lite.....             | GG.....               | 6...            | Conn.....       | GO.....               | S. C..... | 94   |
| Chevrolet.....       | 1915.....       | H-2, H-3, H-4, Late Models.....  | Auto Lite.....             | GG.....               | 6...            | Conn.....       | GO.....               | S. C..... | 95   |
| Chevrolet.....       | 1915-1916.....  | H-2½, H-3, H-4.....              | Auto Lite.....             | GG.....               | 6...            | Conn.....       | GO.....               | S. C..... | 96   |
| Chevrolet.....       | 1916-1917.....  | 490.....                         | Auto Lite.....             | GH.....               | 6...            | Conn.....       | GA.....               | S. C..... | 97   |
| Chevrolet.....       | 1916-1917.....  | 490.....                         | Auto Lite.....             | GH.....               | 6...            | Conn.....       | GA.....               | S. C..... | 98   |
| Chevrolet.....       | 1917-1918.....  | F-2, F-5.....                    | Auto Lite.....             | GH.....               | 6...            | Remy.....       | .....                 | S. C..... | 99   |
| Chevrolet.....       | 1918.....       | D-4, D-5.....                    | Auto Lite.....             | GH.....               | 6...            | Remy.....       | .....                 | S. C..... | 100  |
| Chevrolet.....       | 1919.....       | 490.....                         | Auto Lite.....             | GC.....               | 6...            | Remy.....       | .....                 | S. C..... | 101  |
| Chevrolet.....       | 1920.....       | 490.....                         | Auto Lite.....             | GC.....               | 6...            | Remy.....       | .....                 | S. C..... | 102  |
| Cleveland.....       | 1919-1920.....  | 40.....                          | Gray & Davis.....          | .....                 | 6...            | G & D.....      | .....                 | S. C..... | 103  |
| Cole.....            | 1912.....       | 30-40.....                       | Ward-Leonard.....          | .....                 | 6...            | Split.....      | Mag.....              | D. C..... | 104  |
| Cole.....            | 1913.....       | 4-40, 4-50, 6-60.....            | Delco.....                 | MG12, MG8, MG15 ..    | 6-24            | Delco.....      | 2045, 2045, 2094..... | D. C..... | 105  |
| Cole.....            | 1914.....       | 4.....                           | Delco.....                 | MG 27-37.....         | 6...            | Delco.....      | 2105.....             | S. C..... | 106  |
| Cole.....            | 1914.....       | 6.....                           | Delco.....                 | MG 27-37-B.....       | 6...            | Delco.....      | 2105.....             | S. C..... | 107  |
| Cole.....            | 1915-1916.....  | 4-40 & 6-66.....                 | Delco.....                 | MG 65.....            | 6...            | Delco.....      | 2111.....             | S. C..... | 108  |
| Cole.....            | 1915.....       | 6-50.....                        | Delco.....                 | MG 59.....            | 6...            | Delco.....      | 2111.....             | S. C..... | 109  |
| Cole.....            | 1916.....       | 8-50.....                        | Delco.....                 | G 62.....             | 6...            | Delco.....      | 2117.....             | S. C..... | 110  |
| Cole.....            | 1917-1918.....  | 8-60.....                        | Delco.....                 | G91-131.....          | 6...            | Delco.....      | 2123-2162-72.....     | S. C..... | 111  |
| Cole.....            | 1919.....       | Early Models.....                | Delco.....                 | 138.....              | 6...            | Delco.....      | 2162.....             | S. C..... | 111  |
| Cole Aero Eight..... | 1919-1920.....  | 8-70.....                        | Delco.....                 | 153.....              | 6...            | Delco.....      | 2127.....             | S. C..... | 112  |
| Columbia.....        | 1917-1918.....  | All Models.....                  | Ward-Leonard.....          | R & M.....            | 6...            | A. K.....       | CC.....               | S. C..... | 113  |
| Columbia.....        | 1919-1920.....  | Series 7-W.....                  | Auto Lite.....             | SK12.....             | 6...            | Conn.....       | .....                 | S. C..... | 114  |
| Comet.....           | 1920.....       | C-53.....                        | Wagner.....                | EM 346.....           | 6...            | Wagner.....     | KD 147.....           | S. C..... | 115  |
| Commerce Truck.....  | .....           | E.....                           | Remy.....                  | 249-B.....            | 6...            | Remy.....       | 48.....               | S. C..... | 116  |
| Commonwealth.....    | 1920.....       | 42.....                          | Dyneto.....                | C-176.....            | 6...            | A. K.....       | CC.....               | S. C..... | 117  |



# CIRCUIT DIAGRAMS OF CARS—Continued

| Car               | Year           | Model                        | Starting & Lighting System | Generator No. or Type | Battery Voltage | Ignition System | Coil Type or No. | Wiring | Page |
|-------------------|----------------|------------------------------|----------------------------|-----------------------|-----------------|-----------------|------------------|--------|------|
| Crawford.         | 1915.          | 6.                           | Westinghouse.              | 280.                  | 6.              | West.           | 280.             | S. C.  | 118  |
| Crawford.         | 1916.          |                              | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 119  |
| Crow Elkhart.     | 1916.          | 25-30.                       | Disco.                     | DD.                   | 12.             | Conn.           | GA.              | S. C.  | 120  |
| Crow Elkhart.     | 1916-1917.     | CE 30-33.                    | Dyneto.                    | VA.                   | 6.              | Conn.           | GA.              | S. C.  | 121  |
| Crow Elkhart.     | 1917-18-19.    | K & H 32, 34, 36, 42, 44, 46 | Dyneto.                    | C162-C164.            | 6.              | Conn.           | GA.              | S. C.  | 122  |
| Crow Elkhart.     | 1920.          | H & L.                       | Dyneto.                    | C44.                  | 6.              | Conn.           | GA.              | S. C.  | 122  |
| Cunningham.       | 1913-1914.     | M.                           | North East.                | B1102.                | 16.             | Bosch.          | Mag.             | D. C.  | 123  |
| Cunningham.       | 1916.          | 4.                           | Westinghouse.              | 280.                  | 6.              |                 |                  | S. C.  | 124  |
| Cunningham.       | 1916-1917.     | V.                           | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 125  |
| Cunningham.       | 1918-1919.     | V-3.                         | Westinghouse.              | 760.                  | 6.              | West. or Del.   | 2162.            | S. C.  | 126  |
| Daniels.          | 1916-17-18.    | A-8.                         | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 127  |
| Daniels.          | 1919-1920.     | D-19.                        | Delco.                     | 169.                  | 6.              | Delco.          | 2127.            | S. C.  | 128  |
| Dart.             | 1916.          | B & C.                       | Westinghouse.              | 283.                  | 6.              | West.           | 283.             | S. C.  | 129  |
| Davis.            | 1915.          | 38 A-B-C.                    | Westinghouse.              | 243.                  | 6.              | West.           | 243.             | S. C.  | 130  |
| Davis.            | 1916.          | C-38, 6-E, 6-G.              | Delco.                     | MG 73, 81, 83.        | 6.              | Delco.          | 1058-67.         | S. C.  | 131  |
| Davis.            | 1917-18-19-20. | 6-H, I & K.                  | Delco.                     | G-105.                | 6.              | Delco.          | 2139.            | S. C.  | 132  |
| Deering Magnetic. | 1918.          |                              | Owen.                      |                       | 28.             | Bosch.          | Mag.             | D. C.  | 133  |
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| Detroit.          | 1915.          | D.                           | Remy.                      | SL3.                  | 6.              | Remy.           |                  | S. C.  | 135  |
| Detroit.          | 1916.          | 6-45.                        | Auto Lite.                 | GH.                   | 6.              | Conn.           | GA.              | S. C.  | 136  |
| Detroit.          | 1917.          | 6-45.                        | Auto Lite.                 | GH.                   | 6.              | Conn.           | GA.              | S. C.  | 137  |
| Dixie Flyer.      | 1916-1917.     | L-3.                         | Dyneto.                    | VA.                   | 6.              | Conn.           | GOM.             | D. C.  | 138  |
| Dixie Flyer.      | 1918-19-20.    | "L" Series 35.               | Dyneto.                    | C-69, C-284.          | 6.              | Conn.           | GOM.             | S. C.  | 139  |
| Dodge.            |                | Single Wire Str.             | North East.                | MGD.                  | 12.             | Eisemann.       | Mag.             | S. C.  | 140  |
| Dodge.            |                | Single Wire Str.             | North East.                | MGD.                  | 12.             | Delco.          | 2128.            | S. C.  | 141  |
| Dodge.            |                | Two Wire Str.                | North East.                | MGD.                  | 12.             | Delco.          | 2128.            | S. C.  | 142  |
| Dodge.            | 1915.          |                              | North East.                | MGD.                  | 12.             | Delco.          | 2128.            | S. C.  | 143  |
| Dodge.            | 1916.          |                              | North East.                | MGD.                  | 12.             | Eisemann.       | Mag.             | S. C.  | 144  |
| Dodge.            | 1916.          | Internal Diag.               | North East.                | MGD.                  | 12.             | Eisemann.       | Mag.             | S. C.  | 145  |
| Dodge.            | 1917-18-19.    | 30.                          | North East.                | MGD.                  | 12.             | N-E.            |                  | S. C.  | 146  |
| Dodge.            | 1920.          |                              | North East.                | MGD.                  | 12.             | N-E.            |                  | S. C.  | 147  |
| Dorris.           | 1913.          | H.                           | Westinghouse.              | 400.                  | 6.              | West.           | V.               | S. C.  | 148  |
| Dorris.           | 1913-1914.     | H.                           | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 149  |
| Dorris.           | 1914.          | I.                           | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 150  |
| Dorris.           | 1915.          | I-A-4.                       | Westinghouse.              | 280.                  | 6.              | West.           | 280.             | S. C.  | 151  |
| Dorris.           | 1916.          | I-A-6.                       | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 152  |
| Dorris.           | 1917.          | I-B-6.                       | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 153  |
| Dorris.           | 1918.          | I-C-6.                       | Westinghouse.              | 208.                  | 6.              | Bosch.          | Mag.             | S. C.  | 154  |
| Dorris.           | 1919.          | Early Models.                | Westinghouse.              | 760.                  | 6.              | Bosch.          | Mag.             | S. C.  | 154  |
| Dorris.           | 1919.          | K-4.                         | Westinghouse.              | 760.                  | 6.              | Bosch.          | Mag.             | S. C.  | 155  |
| Dorris.           | 1920.          | 6-80.                        | Westinghouse.              | 760.                  | 6.              | Bosch.          | Mag.             | S. C.  | 156  |



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| Dort.                 | 1916.       | 4 and 5.                    | Splitdorf-Apelco           | A-25, 28, 29.         | 12-6.           | Conn.           | GO.              | S. C.  | 157  |
| Dort.                 | 1916.       | 5.                          | Westinghouse               | 400.                  | 6.              | Conn.           | GO.              | S. C.  | 158  |
| Dort.                 | 1916.       | With and without Am.        | Westinghouse               | 400.                  | 6.              | Conn.           | GO.              | S. C.  | 159  |
| Dort.                 | 1917.       | 9.                          | Westinghouse               | 400.                  | 6.              | Conn.           | GO.              | S. C.  | 160  |
| Dort.                 | 1918-1919.  | 11.                         | Westinghouse               | 760.                  | 6.              | Conn.           | GO.              | S. C.  | 161  |
| Dort.                 | 1920.       | 39.                         | Westinghouse               | 717.                  | 6.              | Bosch           | Mag.             | S. C.  | 162  |
| Elcar.                | 1916.       |                             | Splitdorf-Apelco           | A-25, 28, 29.         | 12-6.           | AK.             | K2.              | S. C.  | 163  |
| Elcar.                | 1917-18-19. | D-E-F and G.                | Dyneto.                    | C-176, C-44, C-162.   | 0.              | AK.             | CC.              | S. C.  | 164  |
| Elcar.                | 1920.       | K-4.                        | Delco.                     | 165-176.              | 6.              | Delco.          | 2159.            | S. C.  | 165  |
| Elgin.                | 1917-1918.  | 6.                          | Wagner.                    | EM 180-165.           | 6.              | Remy.           |                  | S. C.  | 166  |
| Elgin.                | 1919.       | H.                          | Wagner.                    | EM 200.               | 6.              | Wagner.         | KD 147.          | S. C.  | 166  |
| Elgin.                | 1920.       | H.                          | Wagner.                    | EM 352.               | 6.              | Wagner.         | KD 147.          | S. C.  | 167  |
| Empire.               | 1915.       | 31-40.                      | Remy.                      | MG 129.               | 12.             | Remy.           | 49.              | S. C.  | 168  |
| Empire.               | 1915-1916.  | 33.                         | Remy.                      | MG 129.               | 12.             | Remy.           | 49.              | S. C.  | 169  |
| Empire.               | 1916.       | 40-45.                      | Auto Lite.                 | GG.                   | 6.              | Conn.           | GA.              | S. C.  | 170  |
| Empire.               | 1916.       | 60.                         | Auto Lite.                 | GG.                   | 6.              | Conn.           | GO.              | S. C.  | 171  |
| Empire.               | 1916-17-18. | 45 and 51.                  | Auto Lite.                 | GG.                   | 6.              | Conn.           | GA.              | S. C.  | 172  |
| Empire.               | 1917-18-19. | 50-70 A.                    | Auto Lite.                 | GG.                   | 6.              | Conn.           | GA.              | S. C.  | 173  |
| Enger.                | 1914.       |                             | North East.                | A-1080.               | 16.             | Bosch           | Mag.             | D. C.  | 174  |
| Enger.                | 1916-1917.  | TU-12.                      | Westinghouse.              | 400.                  | 6.              | Remy.           |                  | S. C.  | 175  |
| Essex.                | 1919.       |                             | Delco.                     | 133-136.              | 6.              | Delco.          | 2127.            | S. C.  | 176  |
| Essex.                | 1920.       | A.                          | Delco.                     | 166.                  | 6.              | Delco.          | 2127.            | S. C.  | 177  |
| Excelsior Motorcycle. |             | C.                          | Remy.                      | C.                    | 6.              | Remy.           | C.               | S. C.  | 178  |
| Fiat.                 | 1914.       |                             | Westinghouse.              | 202.                  | 6.              | Bosch           | Mag.             | S. C.  | 179  |
| Fiat.                 | 1914.       |                             | Gray & Davis               | E.                    | 6.              | Bosch           | Mag.             | S. C.  | 180  |
| Fiat.                 | 1914-1915.  |                             | Westinghouse.              | 230.                  | 6.              | Bosch           | Mag.             | S. C.  | 181  |
| Fiat.                 | 1915.       | Single Wire.                | Rushmore.                  | DSG-5.                | 6.              | Bosch           | Mag.             | S. C.  | 182  |
| Fiat.                 | 1916-1917.  | E-17 Chassis.               | Westinghouse.              | 560.                  | 6.              | Bosch           | Mag.             | S. C.  | 183  |
| Fiat.                 | 1917.       |                             | Bosch-Rushmore.            | DSG-5.                | 6.              | Bosch           | Mag.             | S. C.  | 184  |
| Fiat.                 | 1917.       |                             | Westinghouse.              | 208.                  | 6.              | Bosch           | Mag.             | S. C.  | 185  |
| Fiat.                 | 1917.       | C-3 Chassis.                | Bosch.                     | DSG-5.                | 12.             | Bosch           | Mag.             | S. C.  | 186  |
| Fiat.                 | 1918-19-20. | 2-3-A.                      | Fiat.                      |                       | 12.             | Fiat.           | Mag.             | S. C.  | 187  |
| Fiat.                 | 1920.       | 501-5-10 (Imported).        | Fiat.                      |                       | 12.             | Fiat.           | Mag.             | S. C.  | 188  |
| Firestone Columbus.   | 1913.       |                             | North East.                | A-1000.               | 16.             | Split.          | Mag.             | D. C.  | 189  |
| Fisher.               | 1916.       |                             | Remy.                      |                       | 6.              | Remy.           |                  | S. C.  | 190  |
| Ford Standard Wiring. |             |                             |                            |                       |                 | Ford.           | Ford.            | S. C.  | 191  |
| Ford.                 | 1919-1920.  | Coupe and Sedan.            | Liberty F. A.              | FA.                   | 6.              | Ford.           | Ford.            | S. C.  | 192  |
| Ford.                 |             |                             | A. B. C.                   | FA.                   | 6.              | Ford.           | Ford.            | S. C.  | 193  |
| Ford.                 |             |                             | Disco.                     | FA.                   | 12.             | Ford.           | Ford.            | S. C.  | 194  |
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| Ford.                   |                | B Revised.                | Dyneto.                    | B.                    | 12.             | Ford.           | Ford.            | S. C.  | 196  |
| Ford.                   |                |                           | Everready.                 | B.                    | 6-12.           | Ford.           | Ford.            | S. C.  | 197  |
| Ford.                   |                |                           | Fisher.                    | B.                    | 12.             | Ford.           | Ford.            | S. C.  | 198  |
| Ford.                   |                |                           | Genemotor.                 | 101-103.              | 12.             | Ford.           | Ford.            | D. C.  | 199  |
| Ford.                   |                | Single Unit.              | Gray & Davis               | S U.                  | 6.              | Ford.           | Ford.            | S. C.  | 200  |
| Ford.                   |                | Two Unit.                 | Gray & Davis               | 2U.                   | 6.              | Ford.           | Ford.            | S. C.  | 201  |
| Ford.                   |                | 33.                       | Heinze-Springfield.        | 33.                   | 6.              | Ford.           | Ford.            | S. C.  | 202  |
| Ford.                   |                | 33 Intl. Wiring.          | Heinze-Springfield.        | 331-W.                | 6.              | Ford.           | Ford.            | S. C.  | 203  |
| Ford.                   |                |                           | Leece-Neville.             | Ford.                 | 24.             | Ford.           | Ford.            | D. C.  | 204  |
| Ford.                   | 1913.          |                           | North East.                | 1913 Ford.            | 12.             | Ford.           | Ford.            | D. C.  | 205  |
| Ford.                   |                | D Type 1210.              | North East.                | D-1210.               | 24.             | Ford.           | Ford.            | D. C.  | 206  |
| Ford.                   |                | D Type 1252.              | North East.                | D-1252.               | 12.             | Ford.           | Ford.            | D. C.  | 207  |
| Ford.                   |                |                           | Simms-Huff.                | Ford.                 | 12.             | Ford.           | Ford.            | S. C.  | 208  |
| Ford.                   |                |                           | Westinghouse.              | Ford.                 | 12.             | Ford.           | Ford.            | S. C.  | 209  |
| F. W. D. Truck.         |                |                           | North East.                | G.                    | 24.             | Eisemann.       | Mag.             | D. C.  | 460  |
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| Franklin.               | 1913-1914.     | Series 2D-H-M.            | Entz.                      | A.                    | 12.             | A K.            | K2.              | D. C.  | 211  |
| Franklin.               | 1913-1914.     | Series 3-M.               | Entz.                      | B.                    | 12.             | A K.            | K2.              | D. C.  | 212  |
| Franklin.               | 1914-15-16.    | Series 6-M, Berl.         | Entz.                      | BL.                   | 12.             | A K.            | K.               | D. C.  | 213  |
| Franklin.               | 1914-15-16.    | Series 6-M Run. and Tour. | Entz.                      | BL.                   | 12.             | A K.            | K.               | D. C.  | 214  |
| Franklin.               | 1914-15-16.    | Series 6-M Sedan.         | Entz.                      | BL.                   | 12.             | A K.            | K.               | D. C.  | 215  |
| Franklin.               | 1915.          | Sedan.                    | Dyneto.                    | BL.                   | 12.             | A K.            | K.               | D. C.  | 216  |
| Franklin.               | 1916.          | Berline Type.             | Dyneto.                    | BL.                   | 12.             | A K.            | K.               | D. C.  | 217  |
| Franklin.               | 1916.          | 8-M.                      | Dyneto.                    | BL.                   | 12.             | A K.            | K.               | D. C.  | 218  |
| Franklin.               | 1917-18-19-20. | Series 9.                 | Dyneto.                    | KIR.                  | 12.             | A K.            | K.               | D. C.  | 219  |
| Galt.                   | 1913.          |                           | North East.                | A-1000.               | 16.             | Split.          | Mag.             | D. C.  | 220  |
| Gardner.                | 1920.          | G.                        | Westinghouse.              | 717.                  | 6.              | West.           |                  | S. C.  | 221  |
| S. G. Gay & Co.         | 1915.          |                           | Allis-Chalmers.            | S U.                  | 6.              | Bosch.          | Mag.             | D. C.  | 222  |
| G. M. C. Truck.         | 1917.          | All Models.               | Delco.                     | G95.                  | 6.              | Delco.          | 2134.            | S. C.  | 223  |
| G. M. C. Truck.         | 1919-1920.     | All Models.               | Delco.                     | 163.                  | 6.              | Delco.          | 2134.            | S. C.  | 224  |
| Glide.                  | 1913-1914.     | 36-42.                    | Westinghouse.              | 230.                  | 6.              | West.           | 230.             | S. C.  | 225  |
| Glide.                  | 1914.          | 30.                       | Westinghouse.              | 230.                  | 6.              | West.           | 230.             | S. C.  | 226  |
| Glide.                  | 1915.          | 30.                       | Westinghouse.              | 230.                  | 6.              | West.           | 230.             | S. C.  | 227  |
| Glide.                  | 1916-1917.     | 6-40.                     | Westinghouse.              | 280.                  | 6.              | West.           | V.               | S. C.  | 228  |
| Glide.                  | 1918.          | Light Six 40.             | Westinghouse.              | 760.                  | 6.              | West.           | V.               | S. C.  | 229  |
| Gramm-Bernstein Truck.  |                |                           | North East.                | M-3704.               | 6.              | Northeast.      |                  | S. C.  | 230  |
| Grant.                  | 1915-1916.     | 4.                        | Allis-Chalmers.            | SU.                   | 6.              | A K.            | K2.              | S. C.  | 231  |
| Grant.                  | 1915-1916.     | 6.                        | Allis-Chalmers.            | SU.                   | 6.              | A K.            | K.               | S. C.  | 232  |
| Grant.                  | 1916.          |                           | Allis-Chalmers.            | SU.                   | 6.              | A K.            | K.               | S. C.  | 233  |
| Grant.                  | 1916-17-18.    | K.                        | Wagner.                    | EM 165.               | 6.              | Remy.           | 171-A.           | S. C.  | 234  |
| Grant.                  | 1918.          | G.                        | Wagner.                    | EM 189-165.           | 6.              | Remy.           | 171-A.           | S. C.  | 235  |



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| H. A. L.....                | 1916-17-18..       | 12.....                         | Westinghouse.....          | 400.....              | 6... 6...       | Delco-Remy..... | .....            | S. C..... | 237  |
| Halladay.....               | 1913-1914....      | G and 32.....                   | Electro.....               | D-SL.....             | 24... 24...     | Split.....      | Mag.....         | D. C..... | 238  |
| Halladay.....               | 1915.....          | 6-40.....                       | Westinghouse.....          | 243.....              | 6... 6...       | West.....       | 243.....         | S. C..... | 239  |
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| Hanson Six.....             | 1920.....          | 54.....                         | Delco.....                 | 165.....              | 6... 6...       | Delco.....      | 2159.....        | S. C..... | 242  |
| Harley-Davidson Motoreycle. | 1915.....          | .....                           | Remy.....                  | HD.....               | 6... 6...       | Remy.....       | HD.....          | S. C..... | 243  |
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| Havers.....                 | 1914.....          | .....                           | North East.....            | A-1000.....           | 16... 16...     | Bosch.....      | Mag.....         | D. C..... | 247  |
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| Herff-Brooks.....           | 1916.....          | .....                           | Splitdorf-Apelco.....      | A25, 28, 29.....      | 12-6. 12-6.     | Bosch.....      | Mag.....         | S. C..... | 258  |
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| Hudson.....                 | 1914-1915....      | 6-40.....                       | Delco.....                 | MG45.....             | 6... 6...       | Delco.....      | 2112.....        | S. C..... | 266  |
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| Hupmobile.....              | 1916-1917....      | N.....                          | Westinghouse.....          | 208.....              | 6... 6...       | A K.....        | K.....           | S. C..... | 273  |
| Hupmobile.....              | 1918.....          | R.....                          | Bijur.....                 | L61-M255.....         | 6... 6...       | A K.....        | CC.....          | S. C..... | 274  |
| Hupmobile.....              | 1919.....          | Early.....                      | Bijur.....                 | L61-M255.....         | 6... 6...       | A K.....        | CC.....          | S. C..... | 274  |
| Hupmobile.....              | 1919-1920..        | R-3.....                        | Westinghouse.....          | 760.....              | 6... 6...       | Remy.....       | .....            | S. C..... | 275  |



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| Imperial.....                | 1913.....          | 34.....                     | North East.....            | A-1000.....             | 16... ..        | A K.....        | K.....           | D. C..... | 276  |
| Imperial.....                | 1914.....          | 32, 34, 39, 44, 54, 56..... | North East.....            | A-1080.....             | 16... ..        | A K.....        | K.....           | D. C..... | 277  |
| Imperial.....                | 1914.....          | 34.....                     | North East.....            | B-1102.....             | 16... ..        | A K.....        | K.....           | D. C..... | 278  |
| Indian Motorcycle.....       | .....              | .....                       | Splitdorf.....             | .....                   | 6... ..         | Split.....      | .....            | S. C..... | 279  |
| Inter. Har. Truck.....       | .....              | .....                       | North East.....            | D-1253.....             | 12... ..        | .....           | .....            | S. C..... | 280  |
| Inter. Har. Truck.....       | .....              | F and H.....                | Bosch.....                 | .....                   | 6... ..         | Bosch.....      | Mag.....         | S. C..... | 281  |
| Inter. Har. Truck.....       | 1918.....          | F, G, H, K.....             | North East.....            | L-3578.....             | 6... ..         | Heinze.....     | Mag.....         | S. C..... | 282  |
| Inter. Har. Truck.....       | 1918.....          | All.....                    | North East.....            | G-3566.....             | 12... ..        | Heinze.....     | Mag.....         | S. C..... | 283  |
| Interstate.....              | 1909-10-11.....    | 25-34.....                  | Incl. Ignition only.....   | .....                   | .....           | Split.....      | Mag.....         | S. C..... | 284  |
| Interstate.....              | 1912.....          | 40, 41, 42.....             | Apelco.....                | SU30.....               | 30... ..        | A K.....        | Uni. S.....      | D. C..... | 285  |
| Interstate.....              | 1912.....          | 50, 51, 52.....             | Apelco.....                | SU30.....               | 30... ..        | Split.....      | Mag.....         | D. C..... | 286  |
| Interstate.....              | 1913-1914.....     | 45.....                     | Apelco.....                | SU30.....               | 30... ..        | Split.....      | Mag.....         | D. C..... | 287  |
| Interstate.....              | 1915-16-17-18..... | TF.....                     | Remy.....                  | 16-B.....               | 6... ..         | Remy.....       | Mag.....         | S. C..... | 288  |
| Interstate.....              | 1915-16-17-18..... | T and TR.....               | Remy.....                  | 18.....                 | 6... ..         | Remy.....       | .....            | S. C..... | 289  |
| Jackson.....                 | 1913.....          | 43.....                     | Auto Lite.....             | GF.....                 | 6... ..         | Remy.....       | LC.....          | D. C..... | 290  |
| Jackson.....                 | 1914-1915.....     | 46.....                     | North East.....            | L.....                  | 6... ..         | Remy.....       | LC.....          | D. C..... | 291  |
| Jackson.....                 | 1915.....          | 46.....                     | Auto Lite.....             | GF.....                 | 6... ..         | Conn.....       | GO.....          | S. C..... | 292  |
| Jackson.....                 | 1915.....          | 48, 6-40.....               | Delco.....                 | MG59.....               | 6... ..         | Delco.....      | 2111.....        | S. C..... | 293  |
| Jackson.....                 | 1915-1916.....     | 44.....                     | North East.....            | L.....                  | 6... ..         | Conn.....       | GO.....          | S. C..... | 294  |
| Jackson.....                 | 1916.....          | 34.....                     | Auto Lite.....             | GA.....                 | 6... ..         | Conn.....       | GO.....          | S. C..... | 295  |
| Jackson.....                 | 1916.....          | 68.....                     | Auto Lite.....             | GG.....                 | 6... ..         | Conn.....       | GO.....          | S. C..... | 296  |
| Jackson.....                 | 1916.....          | 348.....                    | Auto Lite.....             | GG.....                 | 6... ..         | Conn.....       | GO.....          | S. C..... | 297  |
| Jackson.....                 | 1917-1918.....     | 349.....                    | Auto Lite.....             | GG.....                 | 6... ..         | Conn.....       | GO.....          | S. C..... | 298  |
| Jackson.....                 | 1920.....          | 6-38.....                   | Auto Lite.....             | GH.....                 | 6... ..         | Conn.....       | GO.....          | S. C..... | 299  |
| Jackson FWD Truck.....       | .....              | .....                       | Dyneto.....                | C44.....                | 6... ..         | Fisemann.....   | Mag.....         | S. C..... | 300  |
| Jeffery.....                 | 1915.....          | Four.....                   | U. S. L.....               | E4, 11, 19, 20, 38..... | 12... ..        | Bosch.....      | Mag.....         | D. C..... | 301  |
| Jeffery.....                 | 1915.....          | Chesterfield Six.....       | Bijur.....                 | K620, 621.....          | 6... ..         | Bosch.....      | Mag.....         | D. C..... | 302  |
| Jeffery.....                 | 1916.....          | 462.....                    | Bijur.....                 | L-61, M-255.....        | 6... ..         | Bosch.....      | Mag.....         | S. C..... | 303  |
| Jeffery.....                 | 1917.....          | 671.....                    | Bijur.....                 | L-61, M-255.....        | 6... ..         | Bosch.....      | Mag.....         | S. C..... | 304  |
| Jeffery Rap. Ser. Truck..... | .....              | 1016.....                   | Bijur.....                 | L-61, M-255.....        | 6... ..         | Dixie.....      | Mag.....         | S. C..... | 305  |
| Jones.....                   | 1919-1920.....     | .....                       | Auto Lite.....             | GH.....                 | 6... ..         | Conn.....       | GA.....          | S. C..... | 306  |
| Jordan.....                  | 1916-1917.....     | 60 and B.....               | Bijur.....                 | L-61, M-255.....        | 6... ..         | Bosch.....      | Mag.....         | S. C..... | 307  |
| Jordan.....                  | 1918-1919.....     | 60 and FI.....              | Bijur.....                 | L-61, M-255.....        | 6... ..         | Delco.....      | 2159.....        | S. C..... | 308  |
| Jordan.....                  | 1920.....          | M.....                      | Delco.....                 | 165.....                | 6... ..         | Delco.....      | 2159.....        | S. C..... | 309  |
| Kankakee.....                | 1919.....          | .....                       | Delco.....                 | 101.....                | 6... ..         | Delco.....      | 2158.....        | S. C..... | 310  |
| King.....                    | 1915.....          | C-4.....                    | Ward-Leonard.....          | AX-AL.....              | 6... ..         | A K.....        | K.....           | S. C..... | 311  |
| King.....                    | 1915.....          | 8.....                      | Ward-Leonard.....          | AX-AL.....              | 6... ..         | A K.....        | K.....           | D. C..... | 312  |
| King.....                    | 1916.....          | E.....                      | Ward-Leonard.....          | RM.....                 | 6... ..         | A K.....        | K.....           | S. C..... | 313  |
| King.....                    | 1917-18-19-20..... | EE, G, H.....               | Ward-Leonard.....          | RM.....                 | 6... ..         | A K.....        | CC.....          | S. C..... | 314  |
| Kissel.....                  | 1913-1914.....     | 4-40, 6-48, 6-60.....       | Esterline.....             | B.....                  | 12... ..        | Bosch.....      | Mag.....         | D. C..... | 315  |
| Kissel Kar.....              | 1914.....          | 4-40.....                   | Esterline.....             | B.....                  | 6... ..         | Bosch.....      | Mag.....         | D. C..... | 316  |



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| Kissel Kar.           | 1915       | 4-36                       | Westinghouse               | 280                   | 6               | West.           | 280              | S. C.  | 317  |
| Kissel Kar.           | 1915-16-17 | 6-42                       | Westinghouse               | 208                   | 6               | Eisemann        | Mag.             | S. C.  | 318  |
| Kissel Kar.           | 1916       | 4032, 4-36                 | Westinghouse               | 208                   | 6               | West.           | V.               | S. C.  | 319  |
| Kissel Kar.           | 1917-1918  | Double Six                 | Delco                      | 760                   | 6               | Delco           |                  | S. C.  | 320  |
| Kissel Kar.           | 1918-19-20 | Hundred Pt. Six            | Remy                       | 245-B                 | 6               | Remy            | 172-A            | S. C.  | 321  |
| Kline Kar.            | 1913-1914  | B-4-40, 6-50, 6-60, C-4-30 | Rushmore                   | DSG5                  | 6               | Bosch           | Mag.             | D. C.  | 322  |
| Kline Kar.            | 1916-17-18 | 6-36                       | Westinghouse               | 400                   | 6               | Bosch           | Mag.             | S. C.  | 323  |
| Kline Kar.            | 1920       | 6-55                       | Wagner                     | EM305                 | 6               | Conn.           | GA               | S. C.  | 324  |
| Knox Truck            |            | 35 and 38                  | Bijur                      | A2309B                | 6               | Bosch           | Mag.             | S. C.  | 325  |
| Krit.                 | 1915       |                            | North East                 | D1255                 | 12              | Bosch           | Mag.             | D. C.  | 326  |
| La Fayette            | 1920       | All Models                 | Delco                      | MG162                 | 6               | Delco           | 2115             | S. C.  | 327  |
| Leach-Biltwell        | 1920       | Power Plus Six             | Delco                      |                       | 6               | Delco           |                  | S. C.  | 328  |
| Lexington             | 1915       | 4-K, 6-L                   | Westinghouse               | 230                   | 6               | West.           | 230              | S. C.  | 329  |
| Lexington             | 1916       | 6-N                        | Westinghouse               | 760                   | 6               | Bosch           | Mag.             | S. C.  | 330  |
| Lexington             | 1916-1917  | O                          | Westinghouse               | 400                   | 6               | Conn.           | GA               | S. C.  | 331  |
| Lexington             | 1918-1919  | R                          | Westinghouse               | 400                   | 6               | Conn.           | GA               | S. C.  | 331  |
| Lexington             | 1920       | S                          | Gray & Davis               | 605                   | 6               | Conn.           | MA               | S. C.  | 332  |
| Liberty               | 1917-1918  | 10-AB                      | Delco                      | 105                   | 6               | Delco           | 2139             | S. C.  | 333  |
| Liberty               | 1919       | 10-B                       | Wagner                     | EM177                 | 6               | A K.            | CC               | S. C.  | 334  |
| Liberty               | 1919-1920  | 10-B, 10-C                 | Wagner                     | EM339                 | 6               | A K.            | CC               | S. C.  | 335  |
| Lippard-Stewart Truck | 1916       | M                          | Dyneto                     |                       | 12              | A K.            | K                | S. C.  | 336  |
| Lippard-Stewart Truck | 1917       | M-2                        | Remy                       |                       | 6               | Eisemann        | Mag.             | S. C.  | 337  |
| Locomobile            | 1911-12-13 | 30                         | Rushmore                   | DSG-5                 | 6               | Bosch           | Mag.             | D. C.  | 338  |
| Locomobile            | 1911-1912  | 38, 48                     | Rushmore                   | DSG-5                 | 6               | Bosch           | Mag.             | D. C.  | 338  |
| Locomobile            | 1913       |                            | Adlake                     |                       | 6               | Bosch           | Mag.             | D. C.  | 339  |
| Locomobile            | 1915-1916  |                            | Westinghouse               | 520                   | 6               | Bosch           | Mag.             | D. C.  | 340  |
| Locomobile            | 1915-1916  | 38, 48                     | Westinghouse               | 520                   | 6               | Bosch           | Mag.             | S. C.  | 341  |
| Locomobile            | 1917-1918  | 38, 48                     | Westinghouse               | 520                   | 6               | Bosch           | Mag.             | S. C.  | 342  |
| Locomobile            | 1919       | 38, 48                     | Westinghouse               | 520                   | 6               | Bosch           | Mag.             | S. C.  | 342  |
| Locomobile            | 1920       | 38, 48                     | Westinghouse               | 520                   | 6               | Berling         | Mag.             | S. C.  | 342  |
| Locomobile            | 1919-1920  | 48                         | Westinghouse               | 760                   | 6               | Berling         | Mag.             | S. C.  | 343  |
| L. P. C.              | 1915-1916  |                            | Remy                       | SL                    | 6               | Remy            | Mag.             | S. C.  | 344  |
| Lozier                | 1913-1914  | 77                         | Gray & Davis               | E                     | 6               | Remy            | Mag.             | S. C.  | 345  |
| Lozier                | 1915-16-17 | Types 82 and 84            | Gray & Davis               | E                     | 6               | Remy            | Mag.             | S. C.  | 346  |
| Lyons-Knight          | 1914       |                            | North East                 | B1106                 | 24              | Remy            | Mag.             | D. C.  | 347  |
| McFarlan              | 1915       |                            | Westinghouse               | 240                   | 6               | West.           | 240              | S. C.  | 348  |
| McFarlan              | 1916       |                            | Westinghouse               | 775                   | 6               | West.           | V                | S. C.  | 349  |
| McFarlan              | 1917-18-19 |                            | Westinghouse               | 775                   | 6               | West.           | V                | S. C.  | 350  |
| McFarlan              | 1919-1920  |                            | Westinghouse               | 400-450               | 6               | Bosch           | Mag.             |        | 351  |
| Madison               | 1916-17-18 |                            | Remy                       | 168A                  | 6               | Remy            |                  | S. C.  | 352  |
| Maibohm               | 1917       | A                          | Disco                      | MG                    | 12              | A K.            | CC               | S. C.  | 353  |

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| Maibohm.....               | 1918.....          | B.....            | Wagner.....                | EM 200.....           | 6...            | A K.....        | CC.....          | S. C..... | 354  |
| Marion-Handley.....        | 1916.....          | K.....            | Westinghouse.....          | 775.....              | 6...            | West.....       | V.....           | S. C..... | 355  |
| Marion-Handley.....        | 1917.....          | A-B.....          | Westinghouse.....          | 775.....              | 6...            | West.....       | V.....           | S. C..... | 355  |
| Marmon.....                | 1913.....          | 32-4.....         | North East.....            | A1000.....            | 16...           | Bosch.....      | Mag.....         | D. C..... | 356  |
| Marmon.....                | 1913.....          | 48.....           | North East.....            | B1102.....            | 16...           | Bosch.....      | Mag.....         | D. C..... | 357  |
| Marmon.....                | 1914.....          | 41, 48.....       | North East.....            | B1103.....            | 16...           | Bosch.....      | Mag.....         | D. C..... | 357  |
| Marmon.....                | 1915.....          | 41.....           | Bosch.....                 | DS1, DSR, 103.....    | 12...           | Bosch.....      | Mag.....         | S. C..... | 358  |
| Marmon.....                | 1916-1917.....     | 34.....           | Bosch.....                 | DSR-3.....            | 12...           | Bosch.....      | Mag.....         | S. C..... | 359  |
| Marmon.....                | 1916-17-18-19..... | 34.....           | Bijur.....                 | K639, M69.....        | 6...            | Bosch.....      | Mag.....         | S. C..... | 360  |
| Marmon.....                | 1920.....          | 34-B.....         | Delco.....                 | 168.....              | 6...            | Delco.....      | 2135.....        | S. C..... | 361  |
| Maxwell.....               | 1914-1915.....     | .....             | Simms-Huff.....            | MAX.....              | 6-12.....       | Simms.....      | Mag.....         | S. C..... | 362  |
| Maxwell.....               | 1915.....          | .....             | Gray & Davis.....          | T&S.....              | 6...            | Simms.....      | Mag.....         | S. C..... | 363  |
| Maxwell.....               | 1917.....          | 25.....           | Simms-Huff.....            | 6-12.....             | 12...           | A K.....        | CC.....          | S. C..... | 364  |
| Maxwell.....               | 1918-1919.....     | 25.....           | Simms-Huff.....            | 6-12.....             | 12...           | A K.....        | CC.....          | S. C..... | 365  |
| Maxwell.....               | 1920.....          | .....             | Simms-Huff.....            | 12.....               | 12...           | A K.....        | CC.....          | S. C..... | 366  |
| Maxwell One Ton Truck..... | .....              | .....             | Auto Lite.....             | GG.....               | 6...            | A K.....        | CC.....          | S. C..... | 367  |
| Mercer.....                | 1914.....          | 35.....           | Rushmore.....              | DSR.....              | 6...            | Bosch.....      | Mag.....         | D. C..... | 368  |
| Mercer.....                | 1915.....          | 22-70.....        | U. S. L.....               | E58.....              | 12...           | Bosch.....      | Mag.....         | S. C..... | 369  |
| Mercer.....                | 1916.....          | 22-70.....        | U. S. L.....               | E58.....              | 12...           | Bosch.....      | Mag.....         | S. C..... | 370  |
| Mercer.....                | 1917-1918.....     | 22-73.....        | U. S. L.....               | E58.....              | 12...           | Bosch.....      | Mag.....         | S. C..... | 371  |
| Mercer.....                | 1918-19-20.....    | 22-74.....        | Westinghouse.....          | 520.....              | 6...            | Bosch.....      | Mag.....         | S. C..... | 372  |
| Meteor.....                | 1917.....          | 75-80.....        | Delco.....                 | 101.....              | 6...            | Delco.....      | 2139.....        | S. C..... | 373  |
| Meteor.....                | 1920.....          | .....             | Delco.....                 | 135.....              | 6...            | Delco.....      | 2159.....        | S. C..... | 374  |
| Metz.....                  | 1914.....          | 22.....           | North East.....            | D1250.....            | 12...           | Splitdorf.....  | Mag.....         | D. C..... | 375  |
| Metz.....                  | 1915-16-17.....    | 22 and 25.....    | Gray & Davis.....          | T.....                | 6...            | Splitdorf.....  | Mag.....         | D. C..... | 376  |
| Metz.....                  | 1917-1918.....     | G.....            | Westinghouse.....          | 760.....              | 6...            | A K.....        | CA.....          | S. C..... | 377  |
| Metz.....                  | 1920.....          | Master Six.....   | Westinghouse.....          | 717.....              | 6...            | Conn.....       | GA.....          | S. C..... | 378  |
| Michigan.....              | 1913.....          | .....             | North East.....            | A1000.....            | 16...           | .....           | .....            | D. C..... | 379  |
| Michigan Hearse.....       | 1917.....          | .....             | Delco.....                 | 105.....              | 6...            | Delco.....      | 2158.....        | S. C..... | 380  |
| Michigan Hearse.....       | 1920.....          | .....             | Delco.....                 | 165.....              | 6...            | Delco.....      | 2159.....        | S. C..... | 381  |
| Mitchell.....              | 1913.....          | .....             | Esterline.....             | D.....                | 6...            | Splitdorf.....  | Mag.....         | D. C..... | 382  |
| Mitchell.....              | 1916.....          | 8.....            | Westinghouse.....          | 208.....              | 6...            | Conn.....       | G.....           | S. C..... | 383  |
| Mitchell.....              | 1917-1918.....     | C-42.....         | Westinghouse.....          | 208.....              | 6...            | Conn.....       | GA.....          | S. C..... | 384  |
| Mitchell.....              | 1917-18-19.....    | D-40.....         | Splitdorf.....             | 1916G.....            | 6...            | Conn.....       | GA.....          | S. C..... | 385  |
| Mitchell.....              | 1919.....          | Early Models..... | Remy.....                  | 232A.....             | 6...            | Remy.....       | 284B.....        | S. C..... | 386  |
| Mitchell.....              | 1919-1920.....     | Late Models.....  | Remy.....                  | 232A.....             | 6...            | Remy.....       | 284B.....        | S. C..... | 387  |
| Mitchell-Lewis.....        | 1914.....          | .....             | Remy.....                  | O-OB.....             | 6...            | Remy.....       | Mag. P.....      | D. C..... | 388  |
| Mitchell-Lewis.....        | 1914.....          | A-40, 50, 70..... | Remy.....                  | O-OB.....             | 6...            | Remy.....       | Mag. P.....      | D. C..... | 389  |
| Mitchell-Lewis.....        | 1915.....          | 4.....            | Splitdorf-Apelco.....      | A25, 28, 29.....      | 12...           | Conn.....       | GOM.....         | D. C..... | 390  |
| Mitchell-Lewis.....        | 1916.....          | .....             | Splitdorf.....             | A25, 28, 29.....      | 12...           | Conn.....       | GOM.....         | D. C..... | 391  |
| Moline-Knight.....         | 1912-13-14.....    | MK-40.....        | Ward-Leonard.....          | AL-AX.....            | 6...            | Conn.....       | GO.....          | S. C..... | 392  |



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| Moline-Knight         | 1914-1915  | MK-50            | Wagner                     | E M 111               | 12              | Bosch           | Mag.             | D. C.  | 393  |
| Moline-Knight         | 1916-17-18 | MK-40, 50        | Wagner                     | E M 153               | 6               | Conn.           | GA               | S. C.  | 394  |
| Moline-Knight         | 1917-18-19 | C and G          | Wagner                     | E M 202               | 6               | Wagner          |                  | S. C.  | 395  |
| Monitor               | 1919       |                  | Dyneto                     | C176                  | 6               | Conn.           | GA               | S. C.  | 396  |
| Monitor               | 1919-1920  | 6 Series 3       | Dyneto                     | C288                  | 6               | Conn.           | GA               | S. C.  | 397  |
| Monroe                | 1915       | M-2              | Auto Lite                  | GB                    | 6               | Conn.           | GO               | S. C.  | 398  |
| Monroe                | 1917       | 3                | Auto Lite                  | GB                    | 6               | Conn.           | GA               | S. C.  | 399  |
| Monroe                | 1917-1918  | 4, 5, and 6      | Auto Lite                  | GG                    | 6               | Conn.           | GA               | S. C.  | 400  |
| Moon                  | 1914       | 42, 6-50         | Delco                      | 39-B                  | 6               | Delco           | 2105             | S. C.  | 401  |
| Moon                  | 1915       | 4, 38, 6-40      | Delco                      | 57-58                 | 6               | Delco           | 2111             | S. C.  | 402  |
| Moon                  | 1916       | 6-30, 6-40       | Delco                      | 73-83                 | 6               | Delco           | 2120-45          | S. C.  | 403  |
| Moon                  | 1917-1918  | 6-43             | Delco                      | 105                   | 6               | Delco           | 2139             | S. C.  | 404  |
| Moon                  | 1917-18-19 | 6-66             | Delco                      | 105                   | 6               | Delco           | 2139             | S. C.  | 405  |
| Moon                  | 1919-1920  | Victory          | Wagner                     | E M 303               | 6               | Wagner          | KD-147           | S. C.  | 406  |
| Moon                  | 1920       | 6-48             | Delco                      | 135                   | 6               | Delco           | 2159             | S. C.  | 407  |
| Moore                 | 1917-1918  | 30               | Dyneto                     | C-185                 | 6               | Bosch           | Mag.             | S. C.  | 408  |
| Moore                 | 1919-1920  | F                | Auto Lite                  | GD-GG-GH              | 6               | Conn.           | GA               | S. C.  | 409  |
| Moreland Truck        |            | 1½, 2½ and 3 Ton | Westinghouse               | 280                   | 6               | West.           | 280              | S. C.  | 410  |
| Moreland Truck        |            | 2X and 5X        | Westinghouse               | 280                   | 6               | West.           | 280              | S. C.  | 411  |
| Mutual Truck          | 1920       | 2A, 2AP          | Westinghouse               | 760                   | 6               | Bosch           | Mag.             | S. C.  | 412  |
| Napoleon              |            |                  | Auto Lite                  | GA-1153               | 6               | Conn.           | GA               | S. C.  | 413  |
| Nash                  | 1917       | 671              | Bijur                      | L61-M255              | 6               | Delco           | 2155             | S. C.  | 414  |
| Nash                  | 1917-1918  | 681, 2, 3, 4     | Delco                      | 125                   | 6               | Delco           | 2163             | S. C.  | 415  |
| Nash                  | 1919-1920  | 685, 6, 7        | Delco                      | 125                   | 6               | Delco           | 2163             | S. C.  | 415  |
| Nash                  | 1919-1920  | 681 to 687       | Wagner                     | E M 278               | 6               | Wagner          | K 42             | S. C.  | 416  |
| Nash 4 Cylinder Truck | 1918       |                  | Auto Lite                  | JG                    | 6               | A K             | CC               | S. C.  | 417  |
| Nash Truck            | 1919-1920  | 2018-3018        | Auto Lite                  | JG                    | 6               | A K             | CC               | S. C.  | 418  |
| Nash Two Ton Truck    |            |                  | Bijur                      | L61-M255              | 6               | Eisemann        | Mag.             | S. C.  | 419  |
| Nash Two Ton Truck    |            | 4017-A           | Bijur                      | L61-M255              | 6               | Eisemann        | Mag.             | S. C.  | 420  |
| Nash Quad Truck       |            | All Models       | Bijur                      | L61-M255              | 6               | Eisemann        | Mag.             | S. C.  | 421  |
| National              | 1914       | Six              | Remy                       | SL                    | 6               |                 |                  | D. C.  | 422  |
| National              | 1915       |                  | Westinghouse               | 202                   | 6               | Eisemann        | Mag.             | D. C.  | 423  |
| National              | 1916       | Highway Six      | Westinghouse               | 202                   | 6               | Eisemann        | Mag.             | D. C.  | 424  |
| National              | 1916       | Highway Twelve   | Westinghouse               | 760                   | 6               | Dixie           | Mag.             | D. C.  | 425  |
| National              | 1917-1918  | Highway Six      | Westinghouse               | 760                   | 6               | Bosch           | Mag.             | S. C.  | 426  |
| National              | 1917-18-19 | Highway Twelve   | Bijur                      | L61-M255              | 6               | Delco           | 2159             | S. C.  | 427  |
| National Sextet       | 1920       |                  | Westinghouse               | 717                   | 6               | Delco           |                  | S. C.  | 428  |
| Nelson-LeMoon Truck   |            |                  | Westinghouse               | 208                   | 6               | West.           | V                | S. C.  | 429  |
| New Era               | 1916       |                  | Allis-Chalmers             | MG9R                  | 6               | A. K.           | K                | S. C.  | 430  |
| Oakland               | 1913       | 35               | Deaco                      | GFA-TAR               | 6               | Deaco           |                  | D. C.  | 431  |
| Oakland               | 1913       | 35               | Westinghouse               | 208                   | 6               | Briggs          | Mag.             | D. C.  | 432  |

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| Oakland                | 1913       | 35 Special         | Deaco                      | GFA-TAR               | 6               | Briggs          | Mag.             | D. C.  | 433  |
| Oakland                | 1913       | 35, 42             | Deaco                      | GFA-TAR               | 6               | Deaco           |                  | D. C.  | 434  |
| Oakland                | 1913       | 42                 | Deaco                      | GFA-TAR               | 6               | Deaco           |                  | D. C.  | 435  |
| Oakland                | 1913       | 42, 60             | Delco                      | MG12                  | 6-24            | Delco           | 2043-94          | D. C.  | 436  |
| Oakland                | 1914       | 36                 | Delco                      | MG30-41               | 6               | Delco           | 2106             | S. C.  | 437  |
| Oakland                | 1914       | 43                 | Delco                      | MG27-B                | 6               | Delco           | 2105             | S. C.  | 438  |
| Oakland                | 1914       | 48, 62             | Delco                      | MG37-B                | 6               | Delco           | 2105             | S. C.  | 439  |
| Oakland                | 1915       | 37                 | Delco                      | MG49                  | 6               | Delco           | 2111             | S. C.  | 440  |
| Oakland                | 1915       | 49                 | Delco                      | MG50                  | 6               | Delco           | 2111             | S. C.  | 441  |
| Oakland                | 1916       | 32                 | Remy                       | 234-A                 | 6               | Remy            | 172-A            | S. C.  | 442  |
| Oakland                | 1916       | 38                 | Delco                      | 68                    | 6               | Delco           | 2118             | S. C.  | 443  |
| Oakland                | 1916       | 32-B               | Delco                      | 99                    | 6               | Delco           | 2137             | S. C.  | 444  |
| Oakland                | 1917       | 34                 | Delco                      | 111                   | 6               | Delco           | 2137             | S. C.  | 444  |
| Oakland                | 1916-1917  | 50                 | Delco                      | 91                    | 6               | Delco           | 2123             | S. C.  | 445  |
| Oakland                | 1917       | 34                 | Delco                      | 111                   | 6               | Delco           | 2137             | S. C.  | 446  |
| Oakland                | 1918-19-20 | 34-B               | Remy                       | 234-A                 | 6               | Remy            |                  | S. C.  | 447  |
| Oakland                | 1920       | 34-C               | Remy                       | 126-A                 | 6               | Remy            |                  | S. C.  | 448  |
| Old Hickory Truck      | 1916-17-18 |                    | Dyneto                     | C44                   | 12              |                 | Mag.             | D. C.  | 449  |
| Oldsmobile             | 1914       | 54                 | Delco                      | 37-B                  | 6               | Delco           | 2105             | S. C.  | 450  |
| Oldsmobile             | 1915       | 42                 | Delco                      | 49                    | 6               | Delco           | 2111             | S. C.  | 451  |
| Oldsmobile             | 1916       | 43                 | Delco                      | 75                    | 6               | Delco           | 2118-21          | S. C.  | 452  |
| Oldsmobile             | 1916       | 44                 | Delco                      | 91                    | 6               | Delco           | 2123             | S. C.  | 453  |
| Oldsmobile             | 1916-1917  | 45                 | Delco                      | 113                   | 6               | Delco           | 2153             | S. C.  | 454  |
| Oldsmobile             | 1917       | 37                 | Delco                      | 111                   | 6               | Delco           | 2137             | S. C.  | 455  |
| Oldsmobile             | 1918-19-20 | 37, 37-A           | Remy                       | 234-A                 | 6               | Remy            |                  | S. C.  | 456  |
| Oldsmobile             | 1918-19-20 | 45-A and B         | Delco                      | 134-7                 | 6               | Delco           | 2162             | S. C.  | 457  |
| Oldsmobile Truck       |            | T                  | Remy                       | 126A                  | 6               | Remy            |                  | S. C.  | 458  |
| Olympian               | 1917       | 35                 | Auto Lite                  | GH                    | 6               | Conn            | GA               | S. C.  | 459  |
| Oshkosh F. W. D. Truck |            |                    | North East                 | L3766                 | 6               | N. E.           | C4               | S. C.  | 460  |
| Overland               | 1913       | 69 and 71          | Auto Lite                  | C-60                  | 6               | Remy            | Mag.             | D. C.  | 461  |
| Overland               | 1913       | 69 and 71          | U. S. L.                   | E20-38                | 24              | Bosch           | Mag.             | D. C.  | 462  |
| Overland               | 1914       | 79-B               | Gray & Davis               | T&S                   | 6               | Splitdorf       | Mag.             | S. C.  | 463  |
| Overland               | 1915       | 80-C, 80-T and R   | Auto Lite                  | GC                    | 6               | Splitdorf       | Mag.             | S. C.  | 464  |
| Overland               | 1915       | 81-LD and TR       | Auto Lite                  | GC                    | 6               | Dixie           | Mag.             | S. C.  | 465  |
| Overland               | 1915-1916  | 82 and 86          | Auto Lite                  | GA                    | 6               | Dixie           | Mag.             | S. C.  | 466  |
| Overland               | 1916       | 76-T and 75-LD     | Auto Lite                  | GC                    | 6               | Conn            | GA               | S. C.  | 467  |
| Overland               | 1916       | 83-B-DE            | Auto Lite                  | GC                    | 6               | Dixie           | Mag.             | S. C.  | 468  |
| Overland               | 1916       | 83-LD-EX-T-R       | Auto Lite                  | GC                    | 6               | Dixie           | Mag.             | S. C.  | 469  |
| Overland               | 1916       | 83-T-EX-LD-B-D-E-R | Auto Lite                  | GC                    | 6               | Dixie           | Mag.             | S. C.  | 470  |
| Overland               | 1916       | 86                 | Auto Lite                  | GA                    | 6               | Dixie           | Mag.             | S. C.  | 471  |
| Overland               | 1917       | 85-4, T-R-C and SN | Auto Lite                  | GG-GH                 | 6               | Conn            | GA               | S. G.  | 472  |



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| Overland      | 1917       | 85-6-C-SN-T-R.      | Auto Lite.                 | GG-GH.                | 6               | Conn.           | GA.              | S. C.  | 473  |
| Overland      | 1917       | 86-B.               | Auto Lite.                 | GG-GH.                | 6               | Conn.           | GA.              | S. C.  | 474  |
| Overland      | 1917       | 90-T and 90-CL-R.   | Auto Lite.                 | GH.                   | 6               | Conn.           | GA.              | S. C.  | 475  |
| Overland      | 1918       | 90-SN-PLD-R-O.      | Auto Lite.                 | GH.                   | 6               | Conn.           | GA.              | S. C.  | 476  |
| Overland      | 1920       | 4.                  | Auto Lite.                 | GG-GH.                | 6               | Conn.           | GA.              | S. C.  | 477  |
| Owen Magnetic | 1917       | O-36.               | Owen.                      |                       | 34              | Bosch           | Mag.             | S. C.  | 478  |
| Owen Magnetic | 1918-1919  | 42.                 | Owen.                      |                       | 28              | Bosch           | Mag.             | D. C.  | 479  |
| Packard       | 1913       | 48.                 | Bijur.                     | MG1213.               | 6               | Eisemann.       | Mag.             | S. C.  | 480  |
| Packard       | 1914       | 1-38 and 3-48.      | Delco.                     |                       | 6               | Eisemann.       | Mag.             | D. C.  | 481  |
| Packard       | 1914       | 2-38 and 4-48.      | Bijur.                     | MG1213.               | 6               | Eisemann.       | Mag.             | D. C.  | 482  |
| Packard       | 1915       | 3-38 and 5-48.      | Bijur.                     | M157.                 | 6               | Eisemann.       | Mag.             | D. C.  | 483  |
| Packard       | 1916       | 125 and 135.        | Bijur.                     | M157.                 | 6               | Delco.          |                  | D. C.  | 484  |
| Packard       | 1917-1918  | 2-25 and 2-35.      | Bijur.                     | M157.                 | 6               | Delco.          | 2135.            | D. C.  | 485  |
| Packard       | 1918-19-20 | 3-25 and 3-35.      | Bijur.                     | M157.                 | 6               | Delco.          | 2150.            | S. C.  | 486  |
| Packard Truck | 1918       | E.                  | Bijur.                     | M157.                 | 6               | Dixie.          | Mag.             | D. C.  | 487  |
| Paige         | 1916       | G-6 and H-6.        | Gray & Davis.              | 210.                  | 6               | Remy            |                  | S. C.  | 488  |
| Paige         | 1916-1917  | 6-46 and 6-38, H-6. | Gray & Davis.              | 222.                  | 6               | Remy            |                  | S. C.  | 489  |
| Paige         | 1918-19-20 | All Models.         | Gray & Davis.              | 240.                  | 6               | Remy            |                  | S. C.  | 490  |
| Pan-American  | 1918       | G-4 and G-5.        | Gray & Davis.              |                       | 6               | A. K.           | K2.              | S. C.  | 491  |
| Pan-American  | 1920       | American Beauty.    | Westinghouse.              | 717.                  | 6               | A. K.           | CC.              | S. C.  | 492  |
| Panhard Truck | 1918       | A-B.                | Auto Lite.                 | GH.                   | 6               | Conn.           | GA.              | S. C.  | 493  |
| Parker Truck  |            | All Models.         | Westinghouse.              | 760.                  | 6               | Bosch           | Mag.             | S. C.  | 494  |
| Partin-Palmer | 1915       | 38.                 | Allis-Chalmers.            | MG9R.                 | 6               | Conn.           | GO.              | S. C.  | 495  |
| Partin-Palmer | 1917       | 32.                 | Disco.                     | 2U.                   | 6               | Bosch           | Mag.             | S. C.  | 496  |
| Partin-Palmer | 1918       | Ultra 4 Forty.      | Disco.                     | 2U.                   | 6               | Bosch           | Mag.             | S. C.  | 496  |
| Paterson      | 1914       | 32 and 33.          | Delco.                     | MG41.                 | 6               | Delco.          | 2106.            | S. C.  | 497  |
| Paterson      | 1915       | 4-32 and 6-48.      | Delco.                     | 64-59.                | 6               | Delco.          | 2111.            | S. C.  | 498  |
| Paterson      | 1916       | 6-42.               | Delco.                     | 84.                   | 6               | Delco.          | 2123-34.         | S. C.  | 499  |
| Paterson      | 1917-1918  | 6-45 and 6-45R.     | Delco.                     | 105.                  | 6               | Delco.          | 2139.            | S. C.  | 500  |
| Paterson      | 1919       | 6-46.               | Delco.                     | 105.                  | 6               | Delco.          | 2139.            | S. C.  | 500  |
| Paterson      | 1920       | 6-47.               | Delco.                     | 165.                  | 6               | Delco.          | 2159.            | S. C.  | 501  |
| Pathfinder    | 1915       |                     | Westinghouse.              | 280.                  | 6               | West.           | 280.             | S. C.  | 502  |
| Pathfinder    | 1916       |                     | Westinghouse.              | 240.                  | 6               | West.           | V.               | S. C.  | 503  |
| Pathfinder    | 1916       | One-B.              | Delco.                     | 87.                   | 6               | Delco.          | 2123.            | S. C.  | 504  |
| Pathfinder    | 1917       | 12.                 | Delco.                     | 87.                   | 6               | Delco.          | 2123.            | S. C.  | 505  |
| Peerless      | 1915       | 55.                 | Gray & Davis.              | G1-E.                 | 6               | A. K.           | K2.              | S. C.  | 506  |
| Peerless      | 1916       | 56-57FF.            | Gray & Davis.              | T-S.                  | 6               | A. K.           | K2.              | S. C.  | 507  |
| Peerless      | 1917-1918  | 56-2-FF.            | Auto Lite.                 | GA.                   | 6               | A. K.           | CC.              | S. C.  | 508  |
| Peerless      | 1918-19-20 | 56.                 | Auto Lite.                 | GH.                   | 6               | A. K.           | CC.              | S. C.  | 509  |
| Pierce-Arrow  | 1914       | 38-C-2.             | Westinghouse.              | 501.                  | 6               | Bosch           | Mag.             | S. C.  | 510  |
| Pierce-Arrow  | 1914-1915  | 48-B.               | Westinghouse.              | 501.                  | 6               | Bosch           | Mag.             | S. C.  | 511  |

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| Pierce-Arrow             | 1915          | 38-C            | Westinghouse               | 501                   | 6               | Bosch           | Mag.             | S. C.  | 512  |
| Pierce-Arrow             | 1915          | 48-B-3          | Westinghouse               | 501                   | 6               | Bosch           | Mag.             | S. C.  | 513  |
| Pierce-Arrow             | 1916          | Tour. and Encl. | Westinghouse               | 280                   | 6               | West.           | 280              | S. C.  | 514  |
| Pierce-Arrow             | 1917-1918     | 38, 48, 66      | Westinghouse               | 520                   | 6               | Bosch & West    |                  | S. C.  | 515  |
| Pierce-Arrow 2 Ton Truck |               |                 | Westinghouse               | 520                   | 6               | Bosch           | Mag.             | S. C.  | 516  |
| Pilot                    | 1916-17-18    | 6-45            | Delco                      | 89                    | 6               | Delco           | 2120             | S. C.  | 517  |
| Pilot                    | 1920          | 6-45            | Delco                      | 103                   | 6               | Delco           | 2158             | S. C.  | 518  |
| Premier                  | 1914          | M               | Remy                       | M amd MJ              | 12              | Remy            | Mag.             | D. C.  | 519  |
| Premier                  | 1915          | M               | Remy                       | M and MJ              | 12              | Remy            | Mag.             | D. C.  | 520  |
| Premier                  | 1915          | MJ              | Remy                       | M and MJ              | 12              | Remy            | Mag.             | D. C.  | 521  |
| Premier                  | 1917-18-19    | 6-B and 6-C     | Delco                      | 109                   | 6               | Delco           | 2145             | S. C.  | 522  |
| Premier                  | 1920          | 6-D             | Delco                      | 118                   | 6               | Delco           | 2145             | S. C.  | 523  |
| Pullman                  | 1913          |                 | North East                 | A-1000                | 16              | Bosch           | Mag.             | D. C.  | 524  |
| Pullman                  | 1915          |                 | Splitdorf-Apelco           | A25-28-29             | 12              | Conn.           |                  | S. C.  | 525  |
| Pullman                  | 1916          |                 | Splitdorf-Apelco           | A25-28-29             | 12              | Split.          | Mag.             | S. C.  | 526  |
| Pullman                  | 1916          |                 | Splitdorf-Apelco           | A25-28-29             | 12              | Split.          | Mag.             | S. C.  | 527  |
| Pullman                  | 1917          | 434             | Splitdorf                  | C4                    | 6               | Split.          | Mag.             | S. C.  | 528  |
| R. & V. Knight           | 1920          | R               | Wagner                     | EM189A                | 6               | Wagner          | K4               | S. C.  | 529  |
| Regal                    | 1913-1914     | N               | Rushmore                   | DSG5                  | 6               | Bosch           | Mag.             | D. C.  | 530  |
| Regal                    | 1914          | C               | Rushmore                   | DSG5                  | 6               | Bosch           | Mag.             | D. C.  | 531  |
| Regal                    | 1915-1916     | E               | Dyneto                     | DSL                   | 12              | Conn.           | GOR              | S. C.  | 532  |
| Regal                    | 1915-16-17    | 4 and 8         | Dyneto                     | DSL                   | 12              | Conn.           | GOR              | S. C.  | 533  |
| Regal                    | 1917          | J               | Heinze                     | 5471                  | 6               | Heinze          | R                | S. C.  | 534  |
| Regal                    | 1917-1918     | J               | Auto Lite                  | GH                    | 6               | A. K.           | CC               | S. C.  | 535  |
| Reo                      | 1914          | R               | Remy                       | O-OB                  | 6               | Remy            | Mag.             | D. C.  | 536  |
| Reo                      | 1915          | R and M         | Remy                       | O-OB                  | 6               | Remy            | Mag.             | D. C.  | 537  |
| Reo                      | 1916          | M and U         | Remy                       | 241                   | 6               | Remy            | Mag.             | D. C.  | 538  |
| Reo                      | 1916          | R and S         | Remy                       | 240                   | 6               | Remy            | Mag.             | D. C.  | 539  |
| Reo                      | 1917          | M-M-R and S     | Remy                       | 241                   | 6               | Remy            |                  | D. C.  | 540  |
| Reo                      | 1917          | R-4             | Remy                       | 241                   | 6               | Remy            |                  | D. C.  | 541  |
| Reo                      | 1918-1919     | T and U         | Remy                       | 241                   | 6               | Remy            |                  | D. C.  | 542  |
| Reo                      | 1919-1920     | T6 and U6       | North East                 | L3711                 | 6               | N. E.           | T10442           | S. C.  | 543  |
| Reo Truck                | 1917-18-19-20 |                 | Remy                       | 241                   | 6               | Remy            |                  | D. C.  | 544  |
| Republic Truck           |               | 8 and 9         | Remy                       | 166-240-241           | 6               | Remy            |                  | S. C.  | 545  |
| Republic Truck           |               |                 | Westinghouse               | 208                   | 6               | West.           | V                | S. C.  | 546  |
| Republic Truck           |               | 10-11           | Westinghouse               | 208                   | 6               | West.           | V                | S. C.  | 547  |
| ReVere                   | 1919-1920     |                 | Westinghouse               | 717                   | 6               | Bosch           | Mag.             | S. C.  | 548  |
| Riddle Hearse            | 1917          |                 | Delco                      | 101                   | 6               | Delco           | 2139             | S. C.  | 549  |
| Riddle Hearse            | 1919-1920     | 19              | Delco                      | 135                   | 6               | Delco           | 2159             | S. C.  | 550  |
| Riker Truck              | 1918          |                 | Westinghouse               | 208                   | 6               | West.           | V                | S. C.  | 551  |
| Roamer                   | 1916          |                 | Bijur                      | M255-L61-B            | 6               | Bosch           | Mag.             | S. C.  | 552  |



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| Roamer.           | 1917.       | R-A.               | Bijur.                     | M255-L61-B.           | 6...            | Bosch.          | Mag.             | S. C.  | 553  |
| Roamer.           | 1918-1919.  | D-4-75 and C 6-54. | Bijur.                     | M255-L61-B.           | 6...            | Bosch.          | Mag.             | S. C.  | 554  |
| Roamer.           | 1919.       | All Models.        | Bijur.                     | M255-L61-B.           | 6...            | Bosch.          | Mag.             | S. C.  | 555  |
| Roamer.           | 1920.       | 6-54.              | Bijur.                     | M255-L61-B.           | 6...            | Bosch.          | Mag.             | S. C.  | 556  |
| Rock Falls.       | 1919-1920.  | 9.                 | Westinghouse.              | 760.                  | 6...            | Bosch.          | Mag.             | S. C.  | 557  |
| Ross.             | 1916-1917.  | 8.                 | Robbins & Meyer.           | RM.                   | 6...            | A. K.           | K2.              | S. C.  | 558  |
| Russell.          |             | 32 and 48.         | Bijur.                     |                       | 6...            | Bosch.          | Mag.             | D. C.  | 559  |
| Saxon.            | 1915.       | Four.              | Ward-Leonard.              | DET.                  | 6...            | A. K.           | K2.              | D. C.  | 560  |
| Saxon.            | 1915-1916.  | Six.               | Gray & Davis.              | MG9.                  | 6...            | A. K.           | K2.              | S. C.  | 561  |
| Saxon.            | 1916.       | S-2.               | Ward-Leonard.              | RM.                   | 6...            | A. K.           | K2.              | S. C.  | 562  |
| Saxon.            | 1917.       | B-5-R.             | Wagner.                    | EM174.                | 6...            | Remy.           |                  | S. C.  | 563  |
| Saxon.            | 1917.       | S-4.               | Wagner.                    | EM155.                | 6...            | Remy.           |                  | S. C.  | 564  |
| Saxon.            | 1918.       | Y-18.              | Wagner.                    | EM155.                | 6...            | Remy.           |                  | S. C.  | 564  |
| Saxon.            | 1919.       | FY-18.             | Wagner.                    | EM155.                | 6...            | Remy.           |                  | S. C.  | 564  |
| Saxon.            | 1916-1917.  |                    | Bijur.                     | M1213, M339.          | 6...            | A. K.           | K2.              | S. C.  | 565  |
| Saxon.            | 1920.       | 125.               | Gray & Davis.              |                       | 6...            | G and D.        |                  | S. C.  | 566  |
| Sayers & Scovill. | 1916.       | 4.                 | Delco.                     | MG74.                 | 6...            | Delco.          | 2111.            | S. C.  | 567  |
| Sayers & Scovill. | 1916.       | 6.                 | Delco.                     | 73 and 83.            | 6...            | Delco.          | 2120.            | S. C.  | 568  |
| Sayers & Scovill. | 1919.       | E.                 | Delco.                     | 105.                  | 6...            | Delco.          | 2158.            | S. C.  | 569  |
| Sayers & Scovill. | 1920.       | F.                 | Delco.                     | 105.                  | 6...            | Delco.          | 2159.            | S. C.  | 569  |
| Sayers & Scovill. | 1919.       | BP.                | Delco.                     | 135.                  | 6...            | Delco.          | 2159.            | S. C.  | 570  |
| Sayers & Scovill. | 1920.       | CP.                | Delco.                     | 165.                  | 6...            | Delco.          | 2159.            | S. C.  | 570  |
| Sayers & Scovill. | 1920-1921.  | DP.                | Delco.                     | 180.                  | 6...            | Delco.          | 2159.            | S. C.  | 571  |
| Scripps-Booth.    | 1916.       | Six-39 and 40.     | Remy.                      | 254A-256A.            | 6...            | Remy.           |                  | S. C.  | 572  |
| Scripps-Booth.    | 1916-17-18. | C-4, D-8, H.       | Wagner.                    | E162-169.             | 6...            | Remy.           |                  | S. C.  | 573  |
| Scripps-Booth.    | 1918.       | G.                 | Remy.                      | 254A-256A.            | 6...            | Remy.           |                  | S. C.  | 574  |
| Scripps-Booth.    | 1919.       | Six 39-40.         | Remy.                      | 254A-256A.            | 6...            | Remy.           |                  | S. C.  | 575  |
| Scripps-Booth.    | 1920.       | B-39, B-40 (LH).   | Remy.                      | 254A-256A.            | 6...            | Remy.           |                  | S. C.  | 576  |
| Scripps-Booth.    | 1920.       | B-39, B-40 (RH).   | Remy.                      | 254A-256A.            | 6...            | Bosch.          | Mag.             | S. C.  | 577  |
| Seagrave.         | 1916.       | 6.                 | Westinghouse.              | 208.                  | 12...           | West.           | V.               | S. C.  | 578  |
| Seagrave.         | 1919.       | F-4, F-6.          | Delco.                     | 156.                  | 12...           | Delco.          | 2127.            | S. C.  | 579  |
| Service Trucks.   |             |                    | Westinghouse.              | 450.                  | 6...            | Bosch.          | Mag.             | S. C.  | 580  |
| Service Trucks.   |             |                    | Westinghouse.              | 760.                  | 6...            | Bosch.          | Mag.             | S. C.  | 581  |
| Simplex.          | 1917.       | 5.                 | Bosch.                     | DSG5.                 | 12...           | Bosch.          | Mag.             | S. C.  | 582  |
| Skelton.          | 1920.       | 35.                |                            |                       | 6...            | Conn.           | GA.              | S. C.  | 300  |
| Spacke.           | 1919-1920.  | S-G.               | Dyneto.                    | AK304.                | 6...            | A. K.           | K2.              | S. C.  | 2    |
| Speedwell.        | 1914-1915.  |                    | Westinghouse.              | 280.                  | 6...            | West.           | 280.             | S. C.  | 583  |
| Sphinx.           | 1915-1916.  |                    | Splitdorf-Apelco.          | A25-28-29.            | 12...           | Conn.           | GO.              | S. C.  | 584  |
| Standard.         | 1915.       | 4.                 | Westinghouse.              | 501.                  | 6...            | West.           | V.               | S. C.  | 585  |
| Standard.         | 1916.       | 8.                 | Westinghouse.              | 540.                  | 6...            | West.           | V.               | S. C.  | 586  |
| Standard.         | 1916-1917.  | E.                 | Westinghouse.              | 540.                  | 6...            | Splitdorf.      | Mag.             | S. C.  | 587  |

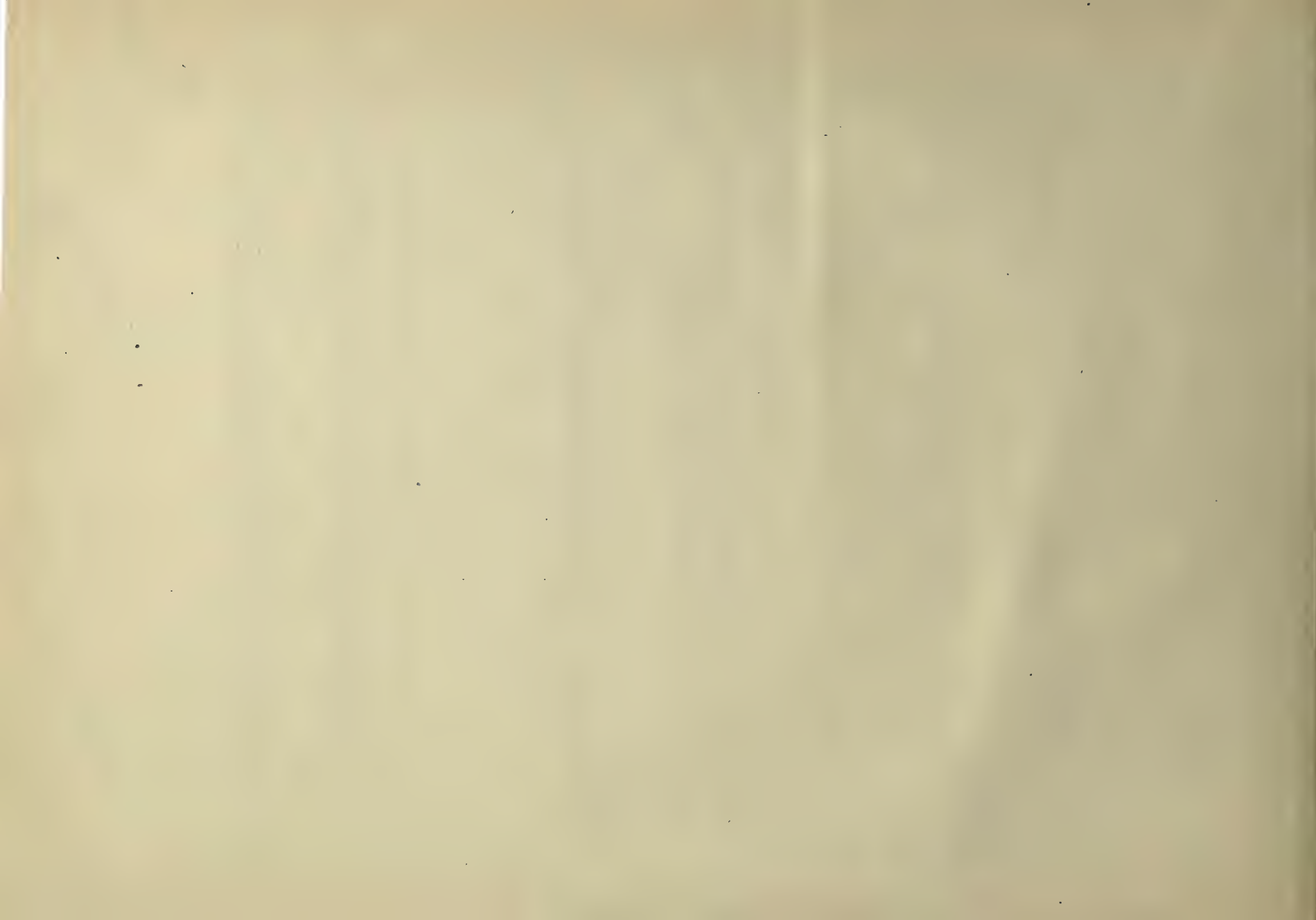
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| Car                          | Year             | Model                 | Starting & Lighting System | Generator No. or Type   | Battery Voltage | Ignition System | Coil Type or No. | Wiring   | Page |
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| Standard.....                | 1917.....        | F.....                | Apelco.....                | C4.....                 | 6... 6...       | Splitdorf....   | Mag.....         | S. C.... | 588  |
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| Stearns-Knight.....          | 1914.....        | 4.....                | Westinghouse.....          | 208.....                | 6... 6...       | Remy.....       |                  | S. C.... | 593  |
| Stearns-Knight.....          | 1915.....        | Light Four.....       | Gray & Davis.....          | G1.....                 | 12... 12...     | Bosch.....      | Mag.....         | S. C.... | 594  |
| Stearns-Knight.....          | 1915-16-17-18-19 | Series 32.....        | Westinghouse.....          | 208.....                | 12... 12...     | Remy.....       |                  | S. C.... | 595  |
| Stearns-Knight.....          | 1916.....        | 8.....                | Westinghouse.....          | 208.....                | 6... 6...       | Remy.....       |                  | S. C.... | 596  |
| Stearns-Knight.....          | 1916-1917...     | SKL-4.....            | Westinghouse.....          | 208.....                | 12... 12...     | Remy.....       |                  | S. C.... | 597  |
| Stearns-Knight.....          | 1916-17-18...    | S-K-8.....            | Westinghouse.....          | 208.....                | 12... 12...     | Remy.....       |                  | S. C.... | 598  |
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| Stearns-Knight.....          | 1920.....        | SKL-4.....            | Westinghouse.....          | 230-240.....            | 12... 12...     | A. K.....       | CC.....          | S. C.... | 600  |
| Stephens.....                | 1917.....        | 65.....               | Auto Lite.....             | GG.....                 | 6... 6...       | Conn.....       | GO.....          | S. C.... | 601  |
| Stephens.....                | 1917.....        | 60-65.....            | Delco.....                 | 105.....                | 6... 6...       | Delco.....      | 2139.....        | S. C.... | 602  |
| Stephens.....                | 1918.....        | 70, 74, 75, 78.....   | Delco.....                 | 123.....                | 6... 6...       | Delco.....      | 2161.....        | S. C.... | 602  |
| Stephens.....                | 1919.....        | 74 and 76.....        | Delco.....                 | 123.....                | 6... 6...       | Delco.....      | 2161.....        | S. C.... | 602  |
| Stephens.....                | 1919-1920...     | 80.....               | Auto Lite.....             | SK12.....               | 6... 6...       | Conn.....       | GA.....          | S. C.... | 603  |
| Stevens Duryea.....          | 1915.....        | D-6.....              | Delco.....                 | MG35.....               | 6... 6...       | Bosch.....      | Mag.....         | S. C.... | 604  |
| Studebaker.....              | 1914.....        | Four.....             | Wagner.....                | EM101.....              | 6... 6...       | National.....   | Mag.....         | D. C.... | 605  |
| Studebaker.....              | 1915.....        | EC-SD5.....           | Wagner.....                | EM107-114.....          | 6... 6...       | Remy.....       | Mag.....         | D. C.... | 606  |
| Studebaker.....              | 1915.....        | 35-EG.....            | Wagner.....                | EM101.....              | 12... 12...     | Remy.....       | Mag.....         | D. C.... | 607  |
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| Studebaker.....              | 1918-1919...     | SH, EG, EH.....       | Wagner.....                | EM214.....              | 6... 6...       | Remy.....       | 171.....         | S. C.... | 609  |
| Studebaker.....              | 1920.....        | Series 20.....        | Wagner.....                | EM326-355.....          | 6... 6...       | Bosch.....      | Mag.....         | S. C.... | 610  |
| Studebaker.....              | 1920.....        | Series 20.....        | Wagner.....                | EM326-355.....          | 6... 6...       | Remy.....       | 171.....         | S. C.... | 611  |
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| Templar.....                 | 1919-1920...     | 4-45.....             | Bijur.....                 |                         | 6... 6...       | Eisemann.....   | Mag.....         | S. C.... | 617  |
| Towmotor.....                | 1920.....        |                       | Delco.....                 | 165.....                | 6... 6...       | Delco.....      | 2159.....        | S. C.... | 618  |
| Union Motor Truck.....       | 1916-1917...     |                       | Auto Lite.....             |                         | 6... 6...       | Conn.....       | GO.....          | S. C.... | 619  |
| Universal Tractor.....       |                  |                       | Remy.....                  | 259.....                | 6... 6...       | Remy.....       |                  | S. C.... | 620  |
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| Velie.....                   | 1916.....        | 22.....               | Remy.....                  | 161 166 240 241.....    | 6... 6...       | Remy.....       |                  | S. C.... | 622  |
| Velie.....                   | 1917.....        | 27.....               | Remy.....                  | 161, 166, 240, 241..... | 6... 6...       | Remy.....       |                  | S. C.... | 623  |
| Velie.....                   | 1917.....        | 28.....               | Remy.....                  | 161, 166, 240, 241..... | 6... 6...       | Remy.....       |                  | S. C.... | 624  |
| Velie.....                   | 1918-1919...     | 38 and 39.....        | Remy.....                  | 161, 166, 240, 241..... | 6... 6...       | Remy.....       |                  | S. C.... | 625  |
| Velie.....                   | 1920.....        | 48.....               | Remy.....                  | 161, 166, 240, 241..... | 6... 6...       | A. K.....       | CC.....          | S. C.... | 626  |



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| Car               | Year        | Model                       | Starting & Lighting System | Generator No. or Type | Battery Voltage | Ignition System | Coil Type or No. | Wiring | Page |
|-------------------|-------------|-----------------------------|----------------------------|-----------------------|-----------------|-----------------|------------------|--------|------|
| Vim Truck.        | 1919-1920.  | 21, 26, 27, 28.             | Westinghouse.              | 760.                  | 6.              | A. K.           | CC.              | S. C.  | 627  |
| Warren.           | 1913-1914.  |                             | North East.                | A1000.                | 16.             | Bosch.          | Mag.             | D. C.  | 628  |
| Wayne.            | 1915.       |                             | Splitdorf-Apelco.          | A25-28-29.            | 12.             | Bosch.          | Mag.             | D. C.  | 629  |
| Westcott.         | 1914.       | O-30.                       | Jesco.                     | 5700.                 | 6.              | A. K.           | K2.              | S. C.  | 630  |
| Westcott.         | 1915.       | U-6-Y-O-35.                 | Delco.                     | 59.                   | 6.              | Delco.          | 2111.            | S. C.  | 631  |
| Westcott.         | 1916.       | 41 and 51.                  | Delco.                     | 73 and 83.            | 6.              | Delco.          | 2124-5.          | S. C.  | 632  |
| Westcott.         | 1916.       | U-50 and O-35.              | Delco.                     | MG64.                 | 6.              | Delco.          | 2111.            | S. C.  | 633  |
| Westcott.         | 1917-18-19. |                             | Delco.                     | 101.                  | 6.              | Delco.          | 2158.            | S. C.  | 634  |
| White.            | 1913.       |                             | Ents.                      | W.                    | 18.             | Bosch.          | Mag.             | S. C.  | 635  |
| White.            | 1914.       | GAG.                        | White-Ents.                | W.                    | 18.             | Bosch.          | Mag.             | S. C.  | 636  |
| White.            | 1914.       | GAGR.                       | White-Ents.                | W.                    | 18.             | Bosch.          | Mag.             | S. C.  | 637  |
| White.            | 1916-1917.  |                             | White-Ents.                | W.                    | 18.             | Bosch.          | Mag.             | S. C.  | 638  |
| White.            | 1917-18-19. | GM.                         | Leece-Neville.             | 153G.                 | 12.             | Bosch.          | Mag.             | S. C.  | 639  |
| Willys-Knight.    | 1916.       | 84-C.                       | Auto Lite.                 | GF.                   | 6.              | Dixie.          | Mag.             | S. C.  | 640  |
| Willys-Knight.    | 1916.       | 84-R.                       | Auto Lite.                 | GF.                   | 6.              | Conn.           | GA.              | S. C.  | 641  |
| Willys-Knight.    | 1916.       | 84 and 84-T.                | Auto Lite.                 | GF.                   | 6.              | Dixie.          | Mag.             | S. C.  | 642  |
| Willys-Knight.    | 1916.       | 84-T, 84-BT, 83-R.          | Auto Lite.                 | GF.                   | 6.              | Dixie.          | Mag.             | S. C.  | 643  |
| Willys-Knight.    | 1917-1918.  | 88-4-C.                     | Auto Lite.                 | GG.                   | 6.              | Conn.           | GO.              | S. C.  | 644  |
| Willys-Knight.    | 1917-1918.  | 88-4 Limo.                  | Auto Lite.                 | GH.                   | 6.              | Conn.           | GO.              | S. C.  | 645  |
| Willys-Knight.    | 1917-1918.  | 88-4-Sn.                    | Auto Lite.                 | GH.                   | 6.              | Conn.           | GO.              | S. C.  | 646  |
| Willys-Knight.    | 1917-1918.  | 88-4-T, 88-4 Lim., 88-4-Sn. | Auto Lite.                 | GD, GG, GH.           | 6.              | Conn.           | GO.              | S. C.  | 647  |
| Willys-Knight.    | 1917-1918.  | 88-8-C and R.               | Auto Lite.                 | GG.                   | 6.              | Conn.           | GO.              | S. C.  | 648  |
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| Willys-Knight.    | 1917-1918.  | 88-8-TC.                    | Auto Lite.                 | GG.                   | 6.              | Conn.           | GO.              | S. C.  | 651  |
| Willys-Knight.    | 1918.       | 89-Clr., Sn and T.          | Auto Lite.                 | GF.                   | 6.              | Conn.           | GO.              | S. C.  | 652  |
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| Winton.           | 1915.       | 21.                         | Bijur.                     | K620-K621.            | 6.              | Bosch.          | Mag.             | S. C.  | 654  |
| Winton.           | 1915.       | 21.                         | Gray & Davis.              | G-1.                  | 6.              | Mea.            | Mag.             | S. C.  | 655  |
| Winton.           | 1915.       | 21-A.                       | Bijur.                     | K639-M69-A2309B.      | 6.              | Bosch.          | Mag.             | S. C.  | 656  |
| Winton.           | 1916.       | 22.                         | Bijur.                     | K620-K621.            | 6.              | Bosch.          | Mag.             | S. C.  | 657  |
| Winton.           | 1917-1918.  | 22.                         | Bijur.                     | K620-K621.            | 6.              | Bosch.          | Mag.             | S. C.  | 658  |
| Winton.           | 1920.       | 24 and 25.                  | Bijur.                     | K620-K621.            | 6.              | Bosch.          | Mag.             | S. C.  | 659  |
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if either or both are effected by short circuit, open circuit, poor contact, or ground, the strength of the machine will be reduced proportionately.

## GENERATORS AND IGNITION COILS

One of the fundamental principles of electricity is that if the number of magnetic lines of force passing thru any closed coil or closed electrical circuit be changed, a voltage will be induced in this coil which will cause a current to flow, the magnetic effect of which is to oppose the change in the original number of lines of force. The voltage, as induced, depends upon the length of time required to change the magnetic influence,—the more rapid the change, the higher the voltage. The operation of all direct current generators, as well as gasoline motor ignition systems, depends upon this principle.

In the case of the generator, the number of magnetic lines of force threading any coil of the armature is a maximum when the plane of the coil is at right angles to the path of the field force from the field coils. This can be readily seen if we take, as an example, a two-pole generator with a single coil on the armature. If we imagine the poles to be in the horizontal position and the plane of the coil in the vertical position we have a condition of maximum number of lines of force threading the coil. Now, if we turn the coil thru any appreciable angle, the field coils and pole pieces remaining stationary, the number of lines of force is decreased and a voltage is generated (the amount depends upon the speed of rotation) in the coils of the armature. By increasing the number of coils in the armature the voltage is increased and kept more nearly constant.

The commutator on the end of the armature shaft is for reversing the current as it leaves the armature, since it is a fluctuating or alternating current that is generated in the coils. This can be readily seen because the number of lines of force is increased during one-half of the revolution and decreased during the other half.

In the case of ignition systems, we have a similar condition, namely, the change in the number of lines of force threading the coil. Ignition coils, primary and secondary, are wound about the same iron core so that any change in magnetic influence of one is transmitted directly to the other with a minimum of loss. When current is flowing thru the primary or low voltage coil of the system, from a battery, in the case of battery ignition, and self-generated by the magnets, in magneto ignition, it builds up a heavy magnetic field, the lines of force of which thread the secondary. When this current is cut off by the opening of the breaker points, this magnetic influence ceases. The change in the number of lines of force thru the primary causes a countervoltage to be induced in the primary, the current from which must be absorbed or a bad arc develops at the breaker points. The condenser, a vital part of all ignition systems, is employed for this work, as further described herein.

Inasmuch as both the primary and secondary coils are wound on the same core, the effect of the change in the magnetism of the primary has the same result in the secondary in that a voltage is induced. The coil relationship is such that this secondary voltage is very high and forces itself across the gap of the spark plug, causing the ignition spark.



## IGNITION

The internal combustion motor derives its power from the expansive force developed by the charge of gas which is compressed in the explosion chamber being suddenly raised from a low to a high temperature. To raise the temperature of this gas one must supply heat. This heat is generated by the burning of a part of the gas (gasoline) which is compressed. As in the case of any burning material, a definite length of time is required, depending upon the quantity, before the material is entirely consumed. This last statement must be borne in mind at all times when considering ignition problems.

To start the burning of any combustible substance an igniting flame or its equivalent, the heat value of which is measured by the inflammability of the substance, must first be applied. This igniting flame, in the case of the gas in an automobile engine, is supplied by the spark which occurs between the electrodes of the spark plug. It is very essential that this spark occur at the proper time relative to the position of the piston in the cylinder as well as that the valves be in the proper position. The gas must be compressed to its highest point when the combustion is completed. Were there no time element to be considered in the burning of the gas, ignition could take place when the piston is at its highest point. However, in order to have the motor operate at its proper efficiency, the spark is so set that the charge is ignited before the piston reaches the top dead center. Since the amount of this advance of the spark before center depends on the speed of the motor as well as its load, considering all forms of ignition the same, provision both manual and automatic is made for varying the

spark position. If the ignition takes place too early, the motor will have a knock that is very characteristic, whereas if it be too late, loss of power and excessive heating will be noted.

In the majority of battery ignition systems the breaker cam is held to the drive shaft with some form of friction device. This cam can be easily moved and thus change the sparking position beyond the limits of the control lever. In the high tension magneto the breaker mechanism is permanently located on the armature shaft, usually with some form of key. For this reason the only method of altering the sparking position beyond the range of the control lever is thru the driving yoke or timing gears of the motor. Alteration of the relationship between the distributor gear and armature gear does not affect the sparking position of the magneto, but does move the high tension conductor relative to the segments in the distributor when the magneto spark occurs.

There are at present two distinctive types of ignition in use on automobile engines, namely, battery ignition and magneto. The principle of operation of each is the same and it is identical with that of the generators, i. e., the inducing of a voltage in a coil of wire by changing the number of magnetic lines of force threading the coil. The ignition system is made up of a *primary* and a *secondary* coil, a primary circuit breaker, a condenser and a distributing system for both the primary and secondary current. The primary coil is one of a comparative few number of turns of rather heavy wire wrapped around a core of soft iron. This coil, as its name implies, is the first one to function in the operation of the

ignition system. The secondary coil is composed of a greater number of turns of very small wire. Since the secondary coil depends upon the changes in the magnetic influence of the primary coil, and in order to eliminate as much as possible the loss of this magnetic influence thru leakage, both the primary and secondary coils are wound upon the same core. The primary circuit breaker is a mechanism used for opening the primary circuit at regular predetermined intervals. The condenser functions in the ignition system in the same way as an air chamber on a water pump, that is, it absorbs the surge in the pressure at one interval and discharges the accumulated pressure at another interval. An electrical condenser is made up of a number of sheets of electrical conducting material, usually tin or aluminum foil, separated by sheets of insulating material, such as paper or mica. Its complete operation is outlined below. The primary distribution system, in the case of battery ignition, is that set of wires which feed the primary current from the battery to the coil and breaker points, and in the magneto that wire or system of wires which are used to short circuit the magneto primary circuit breaker and thus make it inoperative. The secondary distribution system is that which distributes the secondary or high voltage current from the secondary coil to the spark plugs. In the case of multi-cylinder motors this secondary distribution system usually takes the form of a distributor head moulded from a high tension insulation with inserts moulded in place. The high tension current is fed to the center of the distributor head and thru some form of rotor distributed to these inserts and from them thru the spark plug wires to the plugs.

In both the single spark battery ignition and high tension magneto ignition the primary coil is first energized, its magnetic field encircling and threading the secondary coil. Upon

opening the circuit of the primary coil this magnetic influence ceases, which induces a high voltage in the secondary coil. In the design of the ignition unit the relationship between the primary and secondary coils is such that this induced voltage is sufficient to jump the gap at the plug. At the time of opening the primary circuit there is a considerable voltage induced in the primary coil itself and this voltage tends to force current thru the gap at the breaker points even after they have been slightly opened. Were this condition allowed to exist the breaker points would very soon burn away. It is at this point that the condenser functions. Instead of the arc forming at the breaker points the condenser, thru what we may term its elastic characteristic, absorbs the current from this self-induced voltage and almost immediately discharges it back thru the primary coil. Since a reversal of the direction of flow of the current reverses the direction of flow of the magnetic lines of force, the discharge of the condenser reduces the length of time required for the number of lines of force threading the secondary coil to change from maximum to zero. This reduction of the time element for the change increases the secondary voltage because the induced voltage in any coil depends upon the time rate of change of the magnetic influence threading the coil.

The action of the high tension magneto is identical with that of the battery ignition, altho the resultant operating characteristics differ. The high tension magneto, being a self-contained unit, develops its own primary energy thru the rotation of the armature between the poles of the strong horse shoe magnets. The generation of this primary current is explained by again referring to the topic of generators in that the number of magnetic lines of force is changed by the rotation of the armature in the magnetic field. The primary



circuit breaker of the high tension magneto is so located that the contact points open when the primary current is at its greatest value. The magneto armature, under this condition, is usually from one-eighth to five-thirtyseconds of an inch of leaving the pole shoe, when the spark control lever is in the fully retarded position. Since the primary voltage, together with the primary current, increases with an increased speed of rotation of the armature, it is possible to break the primary circuit earlier in the relative position of armature and pole pieces.

There is one characteristic in high tension magneto ignition that is not found in battery ignition, due to the rotation of the secondary coil in the magnetic field. This causes what is called the "after burning" of the spark. Also, since the current as generated in the primary coil of the magneto is alternating, the direction of flow thru the breaker points is reversed every time that they separate. This fact reduces the tendency of burning of the points and eliminates the formation of a cone and crater condition which is so often found on battery ignition systems which have no current reversing feature incorporated in the ignition switch.

### *CUTOUTS OR REVERSE CURRENT RELAYS*

The cutout or reverse current relay automatically connects and disconnects the generator to the battery. When the generator is at rest, the contacts are held open by a tension spring on one of the cutout contacts. When the generator attains a speed sufficient to develop a voltage of 6.5 volts, in the case of 6-volt systems, the cutout is automatically closed and the generator is connected to the battery.

A cutout consists of an iron core having two windings thereon, namely, a shunt and a series winding. The shunt winding is connected across the generator so as to receive the full voltage of the generator across the terminals, and when the machine attains a speed at which it develops a voltage over that of the battery, the shunt winding is sufficiently energized to close the cutout. When the cutout is closed a small current is caused to flow in the series winding connected in the main circuit from the generator to the battery, and this coil is energized. The pull due to the series winding, which is much greater than that of the shunt, reinforces the pull due to the shunt winding and firmly holds the contacts of the cutout in their closed position.

When the speed of the generator is decreased to a value at which its voltage is lower than that of the battery, or when the generator is at rest, a momentary discharge of the battery thru the series winding takes place and demagnetizes the coil. The instant the coil is demagnetized, the tension spring attached to the cutout pulls its contact arm away from the core and opens the circuit.

### *VOLTAGE REGULATORS*

Most voltage regulating units consist of a core having a single winding, this winding being connected across the generator. The current in the winding and the resulting magnetic pull of the core will depend upon the pressure developed by the generator. Opposite one end of the core is a vibrating reed or contact arm, which is spring retracted away from the

core. When this reed is spring retracted away from the core it makes contact so that there is a by-pass around a resistance coil, which is in series with the field winding of the generator. With the vibrating reed in this position, the shunt field winding receives the full pressure developed by the generator. With increasing generator speed the voltage increases until the armature develops 7.75 volts, in case of a 6-volt system, and at this electrical pressure the regulator begins to function and will maintain 7.75 volts across the generator brushes at all higher speeds.

With increasing generator speed the voltage will tend to rise above 7.75. If, however, this value is exceeded by a very small amount, the increased pull on the vibrating reed of the regulating unit will overcome the spring pull and it will be drawn towards the core, thus opening the contacts and inserting the resistance in the generator field circuit. The added resistance in the field circuit decreases the exciting current in the field winding and the voltage developed by the armature tends to drop below the normal value of the 7.75 volts. If the voltage drops slightly below the normal, the pull of the spring on the regulator reed predominates and it again moves away from the core and closes the contacts which short circuits the resistance and permits the exciting field current to increase. This cycle of operations is repeated at rapid intervals and maintains the generator voltage constant at all speeds above the critical value at which it develops 7.75 volts with the resistance cut out of the field circuit.

The rapidity of vibration depends, to a large extent, upon speed, the regulator reed vibrating one hundred to one hundred and fifty times per second. The actual voltage developed by the generator is made up of a series of very fine ripples

above and below a straight line, the mean value of these ripples being 7.75 volts, the constant value for which the regulator is adjusted.

### *CONSTANT CURRENT GENERATORS. (Third brush regulation)*

The voltage regulation of all third brush generators is effected by means of the reactive magnetic flux set up by the current flowing thru the armature.

The amount of current generated depends primarily upon the speed at which machine is driven and the position of the regulating brush with respect to the two main brushes.

Beginning at zero speed, the voltage is, of course, zero, and with increasing speed the voltage increases until the armature develops 6.5 volts, at which value the shunt coil of the cutout is sufficiently energized to cause the cutout switch to close.

After the cutout is closed, the generator begins to deliver current to the battery.

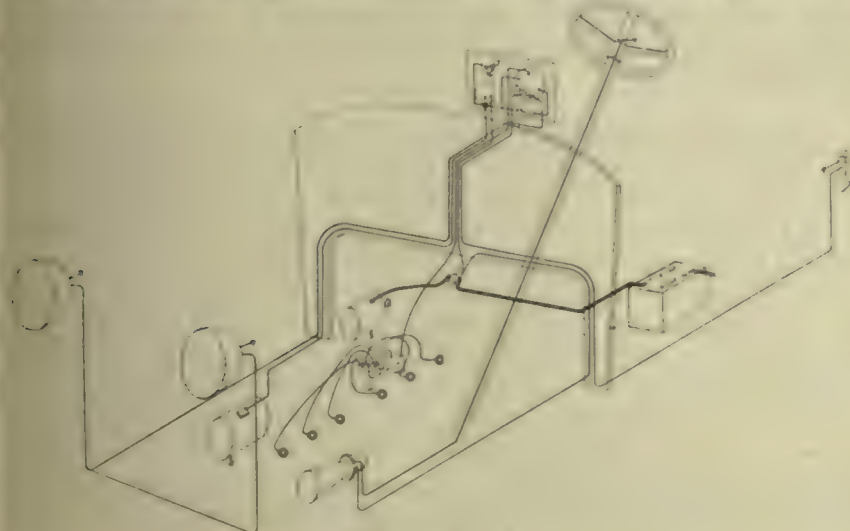
The constant current generator has a single shunt winding distributed over its poles and the regulation is effected by having this winding connected between one of the main generator brushes and an auxiliary or regulating brush. The maximum current generated depends upon the location of the third brush with respect to the main brush to which one side of the shunt field is connected. Moving the third, or regulating brush, in the direction of rotation of the armature, increases the generator output, and in direction opposite to the rotation of armature decreases the output.



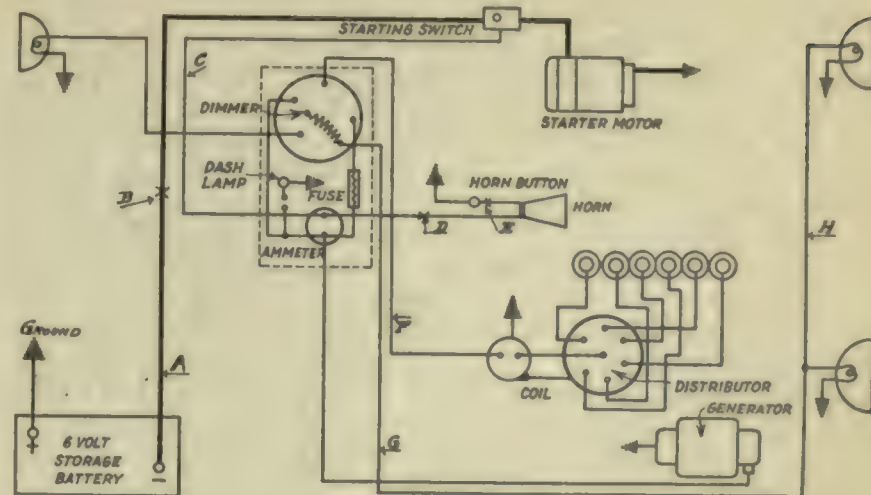
# LOCATION AND CORRECTION OF FAULTS

To be able to fully understand and intelligently trace the faults or troubles that occur from time to time in the electrical circuits and equipment on motor cars, it is essential that the mechanic be able to read the blue-prints covering their electrical wiring. Many equipment and motor car manufacturers issue instruction books containing prints covering their electrical equipment, but as a rule these are so small and the lines representing the wires are so close together that it is impractical to spend hours in tracing them out. To enable the user of this Manual to render service on the electrical equipment of motor cars with the fullest possible efficiency, we have compiled and laid out in plainly readable blue-prints wiring diagrams of all cars and the internal circuits of their various electrical units.

The wiring diagrams contained in the instruction books of the various motor car manufacturers are drawn to scale, which



Drawing No. 1



Drawing No. 2

means a comparatively large starting motor and generator, and a very small lighting and ignition switch. In the following blue-prints the publishers have not attempted to make drawings to scale, but have placed the units in as nearly as possible to their positions on the car, as is practical, and have also enlarged such units as coils, switches, circuit breakers, etc., which have many wires leading to them, thereby making the tracing of circuits an easy matter. The accompanying illustrations represent the wiring of the same car—drawing No. 1, which shows a perspective view, is drawn more or less to scale with units placed in their exact position, while drawing No. 2 is laid out flat and with emphasis made to the units which have the greater number of wires leading to them.

In tracing electrical troubles from wiring diagrams always bear in mind the fact that it is necessary to have a complete

circuit in order that a current may flow; also that if any circuit is crossed with another circuit or comes in contact with the ground (or car frame in the case of a single wire system) this constitutes a short circuit, or a direct path other than the one originally intended, through which the full force of the current will flow and which usually results in a certain portion of the wiring being burned out. Take for example drawing No. 2: should wire "A" come in contact with the ground (or return circuit) at point marked "B", a short circuit would result and the full force of the current from the battery would flow from the negative post of the battery through wire "A" to point "B" and return through the ground "G", with the result of burning cable "A." Or, should cable "A" have sufficient carrying capacity to carry the load, the battery would become discharged in a very short time. In case of lighter wires, or those having less carrying capacity, as in wire "C," should it come in contact with the ground circuit at point "D", the result would be that wire "C" would become so hot that the insulation would burn off and the wire would burn or become disconnected. Should the ground occur at point marked "E", the current would flow from the battery through wire "C" to horn, through horn to point "E," returning to the battery through the ground circuit, with the result that the horn would blow until ground connection at point "E" was disconnected or the positive or negative terminal lead was disconnected from the battery. Should wire "F" become broken or poor electrical contact occur at any point from the switch to the ignition coil, the result would be an open circuit, thereby making it impossible for current to flow from the battery through ignition switch (in "on" position) to ignition coil.

To trace a circuit, taking for example that of the headlights, in illustration No. 2: begin at the battery, following the main

lead to the starting switch, and from there back through the ammeter, through fuse to lighting switch, through lighting switch, through wire "G" to head lamps, through head lamp bulbs to frame of car and through frame of car to battery.

Let us suppose that the right head lamp does not burn, when lighting switch is put in the "on" position, although the left head lamp burns with its natural brightness. This shows conclusively, by looking at figure No. 2, that there is a completed circuit as far as through the left head lamp, which centralizes the trouble in lead "H" from the left head lamp to the right or the right, head lamp bulb or lamp connection.

With the foregoing information and the following blueprints one can readily repair or adjust any part of the electrical equipment of any car. However, just as the repair and adjustment of the mechanical elements of the car require special tools and gauges, satisfactory work on the electrical equipment necessitates the use of electrical tools and measuring instruments.

Probably the most universal and convenient tool for checking various points about the electrical equipment, both assembled or removed from the car, is a pair of test points. A very satisfactory set of test points can be made from an electric light extension cord by cutting one of the conductors and soldering a brass point made from one-quarter inch brass rod six inches long, to each end, or extension of the cut wire. With the plug in the light socket and the current turned on, the lamp will light if the points are in contact, either directly or thru some electrical conductor, and will not light if the points are not in contact. With these test points it is possible to determine the presence as well as the location of open or short circuit, cross connections and grounds. As an illus-



tration of the use of the test points: it is desired to locate trouble in a two-unit starting and lighting system of which one pole of both the motor and generator is normally grounded. The difficulty is that the battery does not stay charged. The generator is found to be of the third brush controlled type and mechanical corrections, such as cleaning the commutator, sanding in the brushes and tightening all of the connections does not correct the fault. First remove the inherent ground connection and insulate all of the brushes from the commutator. This can be done very easily by placing a piece of paper between each brush and the commutator. Also remove the connection to the battery or cutout relay. The generator circuits are now isolated, and by referring to the blueprint showing the internal connections of the unit one can determine the correct connections and circuits. For instance, the shunt field is connected across the third brush and the positive post of the machine. If we place one of the test points on the third brush and the other on the positive post of the generator, the lamp will light if the circuit be continuous, but not if the circuit be open. If this shunt field be open there is no magnetic field thru which the armature must rotate to generate any current. One usually finds an open circuit of this nature in the leads connecting the different coils of the field or that leading to the brush or brush pigtail. Correction can be made by soldering intact and winding tape over the connection. Supposing that the circuits are all complete, then test for short circuit or grounds. The blueprints show what these circuits should be and one can very readily, with the test points, determine whether or not they be properly connected to or insulated from each other.

One of the more common troubles encountered is that of grounds or failure of the insulation between the conductors

of the machine and the machine frame. This condition, if present, can be determined by testing for circuit between the conductors of the various circuits and the machine frame. For instance, as in the case just cited, of the generator with brushes insulated from the commutator, place one of the test points on one of the brushes and the other point on any part of the machine frame. In case of ground, the lamp will light. The armature can be tested for ground by placing one of the test points on the commutator and the other on the armature shaft. If ground is found in the armature coils, as well as short or open circuit, it is advisable to return the complete armature to the factory for repair since very extensive equipment is necessary to properly dip in insulating varnish and bake after the coils have once been disturbed. This same practice should prevail when one encounters difficulty within any coil of wire used in connection with electrical work when the coil has been treated with varnish. Supposing a ground were found between a field coil and the pole piece; correction can be made by inserting suitable insulation between the coil and pole piece at that point where the insulation is broken.

Failure of the insulating bushings or washers that are used with the binding post studs which act as the conductors through the machine frame or housings can be corrected only by replacement of the bushings or washers.

The wear of the brushes leaves a carbon dust deposit on all of the parts in the commutator end of the machine, and if this accumulation becomes sufficient, short circuit or ground will ensue which makes the machine inoperative. It is very essential that the commutator end of the machine be kept clean and free from this dust at all times as it tends to work into the bearing points of the brush holder, causing the latter to become so sluggish in its action that the brush cannot follow



the variations of the commutator. With this condition present excessive arcing at the brushes results, and the brushes and commutator will both burn away in a very short time, necessitating new brushes, turning off the commutator and possibly new brush springs. Another condition that will cause excessive arcing at the brushes is that of high mica in the commutator. The copper may wear away faster than the insulation, the latter projecting above the surface somewhat. In all generator commutators the mica should be undercut about 1-32 inch with a hack saw blade, which will eliminate this difficulty.

No garage can be considered complete unless an ammeter and a voltmeter of suitable calibration be listed in their equipment. The electrical equipment of an automobile may be satisfactory in every way, apparently, and still give the owner of the car a great deal of trouble. For example, the generator may be charging the storage battery when the motor is running but still the battery does not hold its charge. One may suppose that the charging rate of the generator is not sufficient to keep the system in condition but without some means of measuring the actual current flowing he remains in the dark. Further it is very inconvenient, at times, to test for short or open circuit or ground with the test points. For example, it is desirable to determine whether an open circuit exists on a lighting circuit on a car. By placing the ammeter in that particular circuit with the switch in the "on" position one can determine whether current be flowing or not. If there is current flowing, which is in excess of that drawn by the lamp, a short circuit exists which permits the current to flow thru the circuit, but not thru the lamp which is of rather high resistance.

Again, the test points may show continuity of circuit but still no current will flow when in its normal operation. This

condition would be caused by a loose or dirty connection in the circuit which introduces a high resistance and causes an excessive voltage drop at that point which, tho allowing current to flow when the higher voltage of the test lamp circuit is employed, virtually opens the circuit on the lower voltage. This condition is usually found more in the starting system than the lighting or generating, and its location can *sometimes* be determined by the heating of the connection. However, the more satisfactory method is to measure the voltage drop, with the current turned on, across all of the connections in the circuit, with a voltmeter of suitable scale and calibration. That which shows the greatest drop is, of course, the one that is giving the trouble. For example, a starting system fails to operate even tho the battery be fully charged and all connections tight. The commutator of the starting motor is inspected, sanded smooth if necessary and still the starter will not crank the motor. By measuring with a voltmeter the drop across the various connections, we find that the voltage thru the starting switch is very much lower than that of the battery. This condition would absolutely prohibit sufficient current reaching the starter to develop any appreciable power. Upon disassembling the switch a very unsatisfactory contact surface would be found, either burned or dirty or, due to loss of tension of the springs, the contact surfaces are not held together tight enough.

A further use of the ammeter and voltmeter together is to test for open or short circuits in armature coils. To test for an open circuited coil, disconnect the field coils from the machine, but leave the brushes in contact. Now connect a dry cell in the circuit so that about eight amperes will flow thru the armature. With a pair of soft points as leads from the voltmeter, measure the voltage drop between adjacent bars of the commutator. A sudden increase in this voltage



discharged state, the same condition results. This is due to the minute crystals of lead sulphate, which are formed on both plates of all lead batteries during discharge, slightly dissolving in the electrolyte, and recrystallizing out, one upon the other, until there are appreciable crystals formed, making a white and shiny layer over the whole plate. A battery in this condition acts very similarly to one which is worn out,—in that its capacity in ampere hours has fallen far below the manufacturer's rating, leading one to believe that a great deal of the active material has fallen out of the plates. The remedy for a sulphated battery is a long, slow over-charge, at about one quarter the normal charging rate. This continued over-charge is necessary because of the difficulty of breaking the sulphate down by means of an electric current. In fact, the fault is corrected in part only after the treatment prescribed. Great care should be exercised in this charge, as well as for any other correction or in the operation of a storage battery, that the temperature of the electrolyte never exceeds 100 degrees Fahrenheit. Temperatures above this point are accompanied by a hardening of the plates, resulting in lower terminal voltage on discharge, and carbonizing of the separators which reduce their insulating value and cause premature failure.

Failure of insulation in a storage battery, as well as any internal short circuit due to foreign material or high sediment, is shown by partial or total loss of voltage of that cell, or if only a very slight internal short circuit, by rapid loss of charge.

Evidence of a broken jar is very apparent through leakage of the electrolyte.

Breakage of a pillar post or strap connector is noticeable either by the wobble, or excessive heat generated at the faulty connection when the battery is being discharged at a high rate.

One condition that may confront the battery repair man which is very easily explained, but at times difficult to detect, is the failure of separator insulation due to excessively strong electrolyte. The strong acid very rapidly attacks the wood fiber of the separator and makes it appear as mussy wet chocolate. The specific gravity of the electrolyte in this case is usually at least 1320 and the voltage on charge is normal but falls off rapidly on discharge. Remedy for this fault, in case the plates have not been too heavily sulphated, is replacement of separators and very low electrolyte, bringing the gravity back with a slow charge.

## REPAIRING BATTERIES

### *LEAD CONNECTOR—SEALED TYPE*

Before starting to dismantle a battery, a sketch should be made showing the inter-cell connections and position of terminals for guidance in re-assembling.

To remove terminals and cell connectors center-punch the tops of each over the terminal posts and drill to a depth of  $\frac{3}{4}$  inch, using  $\frac{5}{8}$  inch drill for 12 volt batteries and  $\frac{7}{8}$  inch for 6 volt batteries. Do not drill deeper than necessary as it involves extra labor in building up the post again when re-assembling.

To remove top connections after being drilled, place a flat piece of steel along edge of case to prevent marring or crush-

ing of edges; then use lever underneath connector and pry off. Brush off the accumulation of lead and dirt from top of battery. Care should be exercised to keep foreign substances from the inside of the battery, especially metal which may become lodged between the plates and cause short circuiting.

Remove vent plugs and blow in the holes in the covers. This should always be done before bringing an open flame near the battery, as an explosive gas, (hydrogen), is generated in the battery during both charge and discharge. Explosion of this gas in the confined space of the battery cell usually results in a broken jar. The moulded rubber vent plugs being very brittle and easily broken, the use of pliers for their removal is not advisable.

Soften the sealing by playing a soft flame over the compound. Care must be taken so that the flame does not burn the covers. It is best to play the flame back and forth, not steadily in one place as this will cause the compound to melt and run. A small flame used for several minutes brings better results than a strong flame which melts only the surface compound and leaves that below hard.

Use a heated screw driver (to prevent adhering) and dig out the compound. After all the compound has thus been removed apply the flame to the inside of the jar (through vent tube) for an instant, then run a hot putty knife around the edges between jar and cover.

Place the battery on the floor and, holding firmly between the feet, grasp the terminal posts with two pairs of pliers and lift the element and cover out together. Let the elements rest

at an angle on top of jars to drain. While the elements are draining, apply flame around the terminal posts and lift off covers.

If separators are in good condition, and a jar replacement only is necessary, set the element in electrolyte or water until ready to replace. If separators are to be changed, separate the positive and negative groups by grasping the elements firmly by the posts and working slowly back and forth.

The smallest opening in a separator may cause a short circuit which may not be discovered until the battery has been in use again for some time. When separators have turned black, they are carbonized and their life is virtually gone. To remove separators, take a long bladed knife and run it between the plate and the separator. It is always best to renew the separators. Separators should never be allowed to become dry, but should be kept immersed in a very weak solution of electrolyte.

Inspect plates to determine whether or not they require replacement. If battery has been overheated through overcharging or short circuiting, this will be indicated by brittle and buckled plates, with active material granular and falling away from the grid. Plates in this condition will have to be replaced.

The condition of the positive plates can be ascertained by using the blade of a knife. If they are fairly hard and have neither lost too much of their surface nor become extremely buckled they can be used again.



The condition of the negative plates is very often such that they may be used again with new positives. In this case the negative group should be immersed in water to prevent the plates from drying out through heating by exposure to the air.

Occasionally it happens that one or two plates in a group require replacement while the balance of the plates are in good condition. In this case new plates may be used in replacement. A group of buckled plates which, when re-assembled, will not go into the jar readily, should be replaced with a new group.

Invert the case over a sink and thoroughly cleanse the jars by inserting a hose and injecting a stream of water into each. Be sure that all sediment and foreign matter is removed before replacing the elements.

Inspect the jars carefully for cracks or holes. Jars exhibiting such, regardless of the size of the imperfections, should be replaced with new ones.

To remove a jar fill it with boiling water and allow it to stand for a few minutes. This will loosen the sealing compound surrounding the jar. Grasp the edges of the jar with two pairs of pliers and pull it straight up. Care should be used so as not to damage adjacent jars.

The new jar should be heated before being placed in the case. When the jar has been heated either with boiling water or flame, it should be pushed into place, taking care that the top of the jar is level with the others. If not lined up, the top connectors will be uneven, and as a result present a very amateurish-looking job.

To assemble an element, place the positive and negative groups on a clean, flat surface. Always make sure that it is free from lead scrapings or foreign substances of any kind, as these substances will adhere to wet separators, which will cause short circuiting of the plates. Intermesh the positive and negative group. As the negative group contains one more plate than does the positive, both outside plates will be negative.

Lay the element on its edge and insert the separators between each pair of plates, the grooved side of the separator next to the positive plate. Carefully check up separators after assembling, as omitting a separator would cause considerable trouble.

Take the element by the pillar posts and lower gently into the jar. This should be done very carefully to avoid breaking the jar.

If the cover does not fit close to the terminal posts, or the wall of the jar, the openings should be calked to prevent the melted sealing compound from flowing into the jar.

Pour the compound so that it will fill all spaces and reach to a height level with the top of the case. Also see that it flows evenly over the whole surface.

Before applying connectors, see that the terminal posts are free of all compound and dirt.

Using an ordinary pocket knife, clean the inside of the connectors. Then clean the tops of the connectors with a file, to remove dirt and oxide, so that they can be properly united.

Before applying the terminal connectors, test all cells with a voltmeter to see if they are set up properly. The connectors should be applied so that the positive of one cell is connected to the negative of the next cell.

In welding connectors and terminals to the posts, fuse the top of the post with the edges of the hole in the connector. Melt strips of lead and allow the molten metal to run into the hole in the connector. Care must be taken to see that the top of post and the inside edges of the connectors are properly melted together before adding additional lead. If this is not done, poor contact will result. Care should be taken not to melt the outer edges of the connectors.

After burning the connectors and terminals, mark the positive terminal (+) and the negative (-).

## CHARGING

Fill battery with electrolyte and start to charge at one half the normal charging rate and continue until gravity stops rising. During the development charge take occasional temperature readings and if the temperature of any cell exceeds

100° F., lower the charging rate, or discontinue charge until the cell cools. The strength of the electrolyte used for filling the battery largely depends upon the condition of the plates. If all new plates are used, gravity should be 1.300; if positive renewal, 1.285; if old and sulphated plates, 1.100, and if old and not sulphated plates, 1.250.

If the battery has new plates, twice its rated capacity will be required for the development charge. If the plates are old and badly sulphated, more time may be required.

Any cells which have not been repaired should be left out of the circuit during the first half of the developing charge. They may then be connected into the circuit and the whole battery brought to full charge.

When the charge is complete, adjust the gravity of the electrolyte to 1.280 to 1.300. To do this remove some electrolyte from the cell and replace with pure water until desired gravity is reached; or remove electrolyte from the cell and replace with 1.400 acid, according to whether the cell reading is high or low.

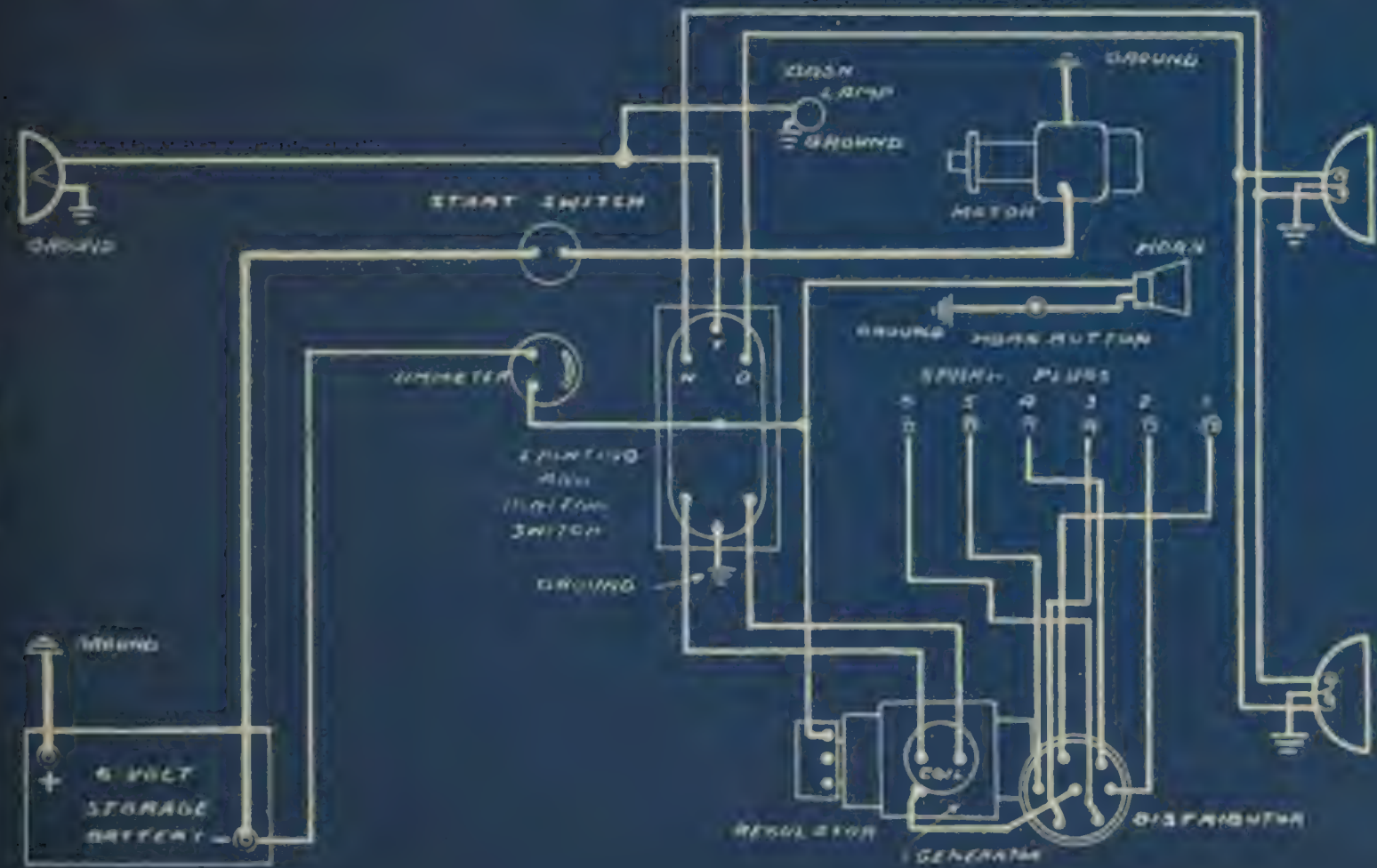
Clean off the top and sides of battery, cover terminals and connectors with vaseline and the battery is then ready for service.









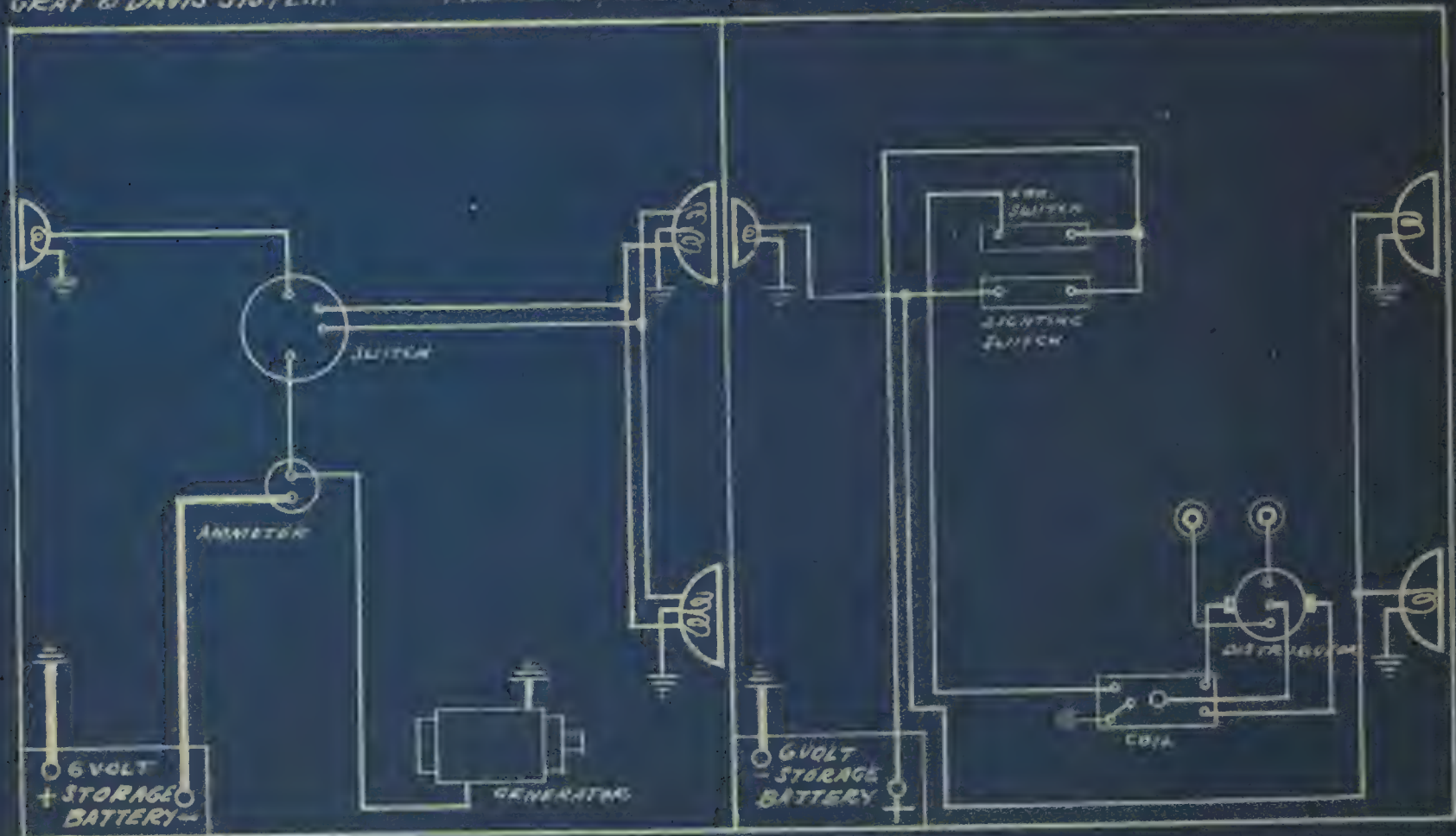


ACME TRUCK ALL MODELS 1919-20  
GRAY & DAVIS SYSTEM.

FROM HEND. 4773111

SPACKE S19 1919-20  
AT-VAED-KENT IGN.

FROM HEND. 4773111

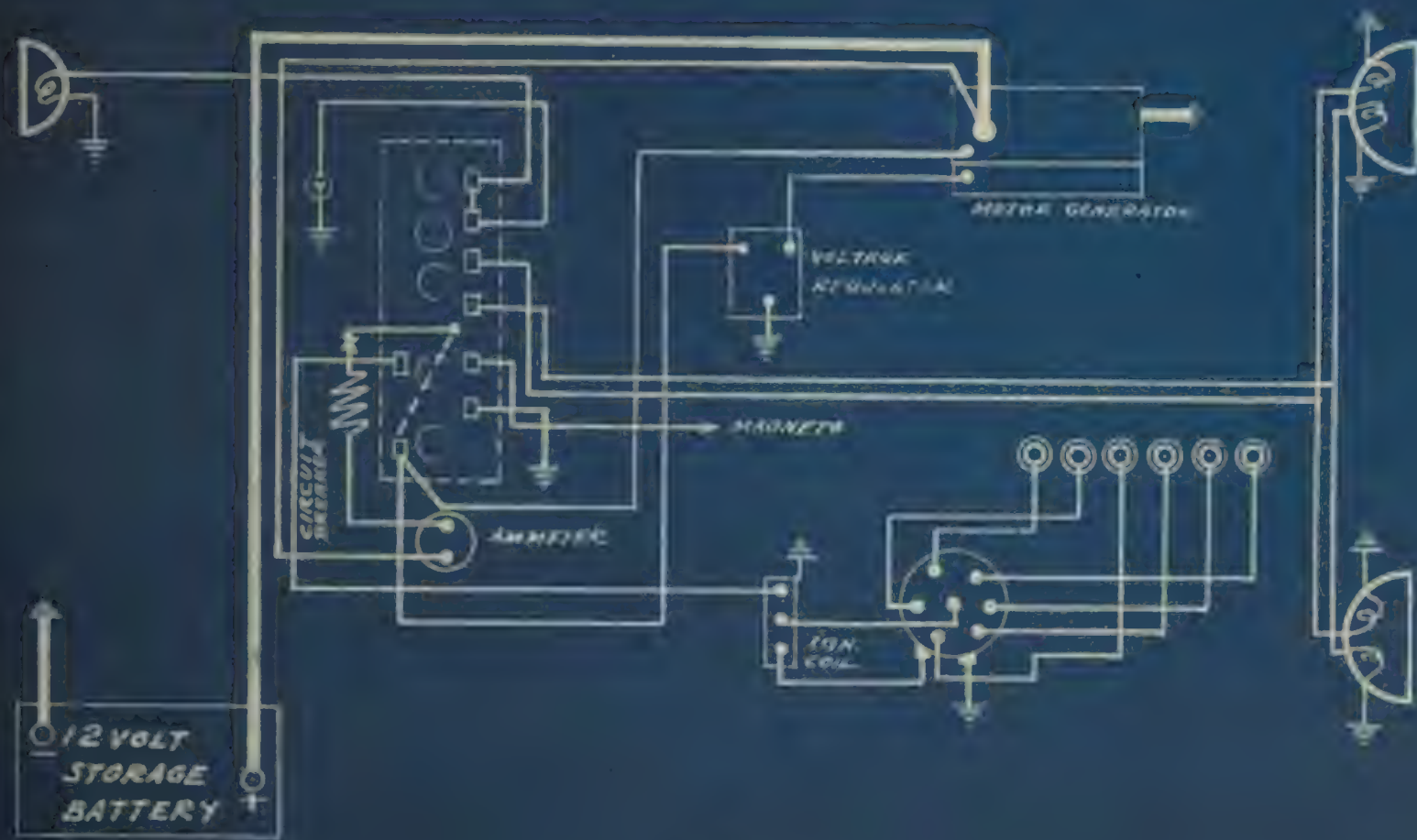


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Auto-Lighting Manufacturing Co.  
Patented in U.S.A.



# AHRENS-FOX FIRE ENGINE ALL MODELS DELCO SYSTEM

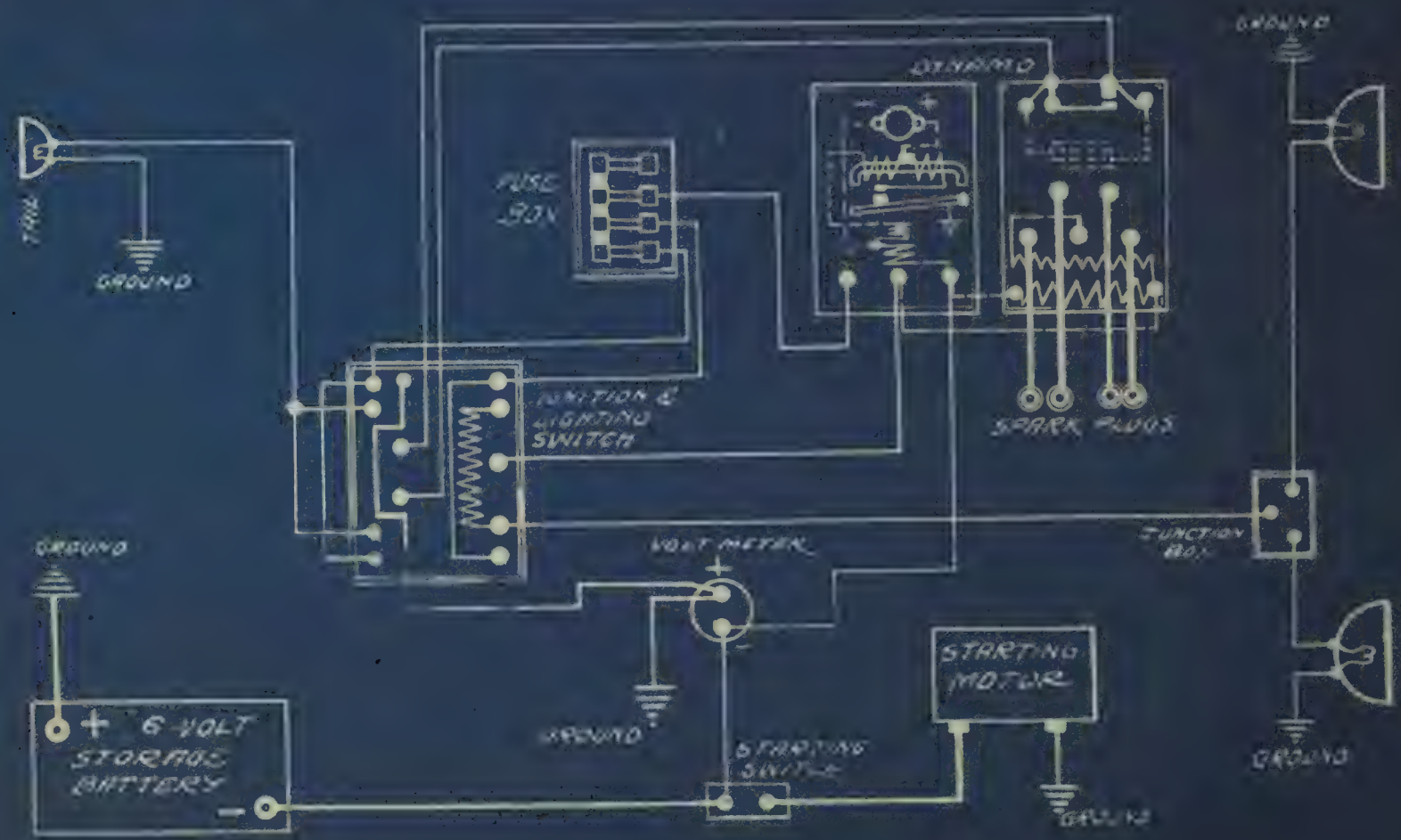
FROM MFRS. INST. BOOK



# ALLEN 1914-15 34 33

## WESTINGHOUSE SYSTEM

FROM ALLEN BR 9571112

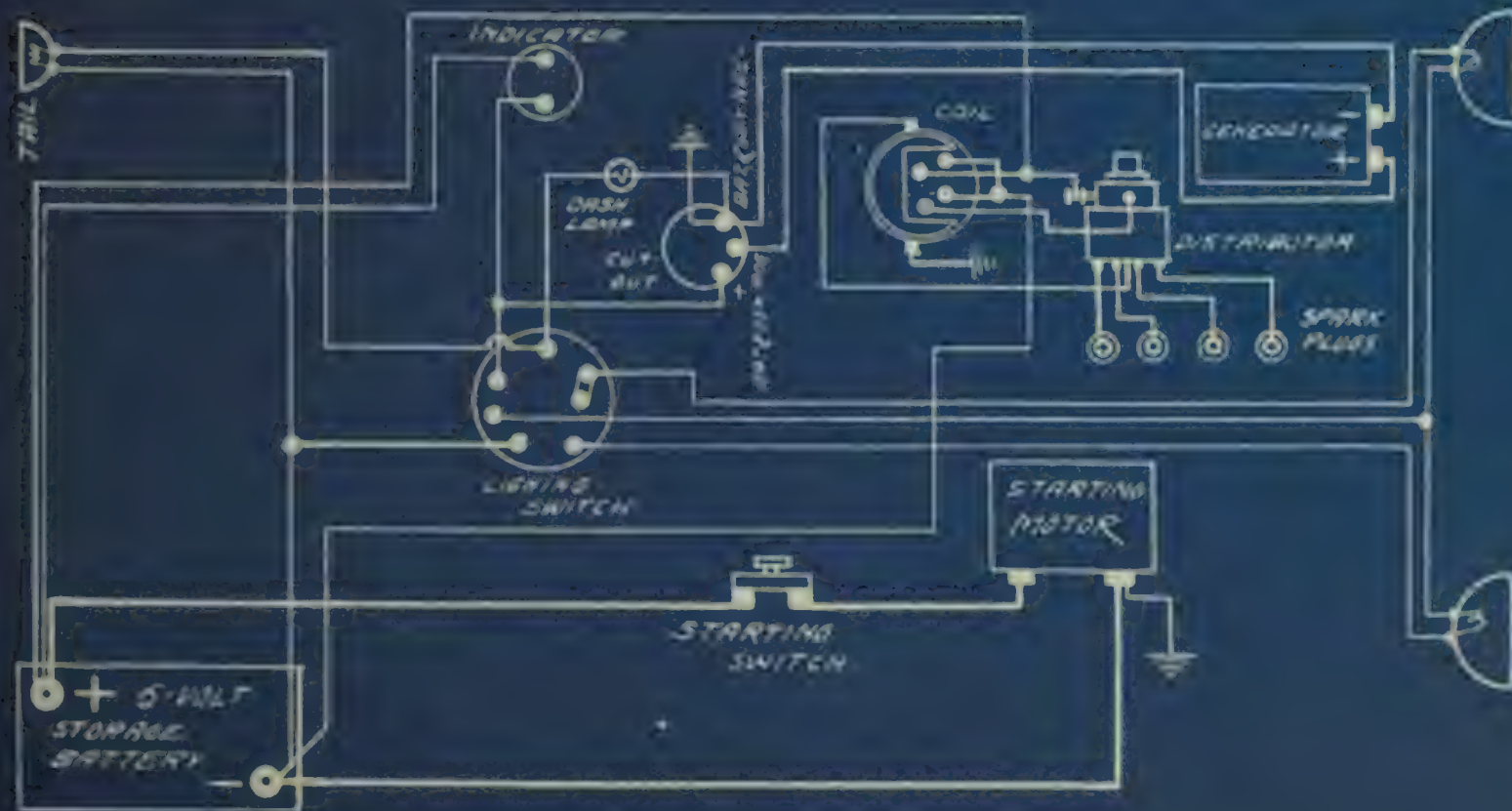




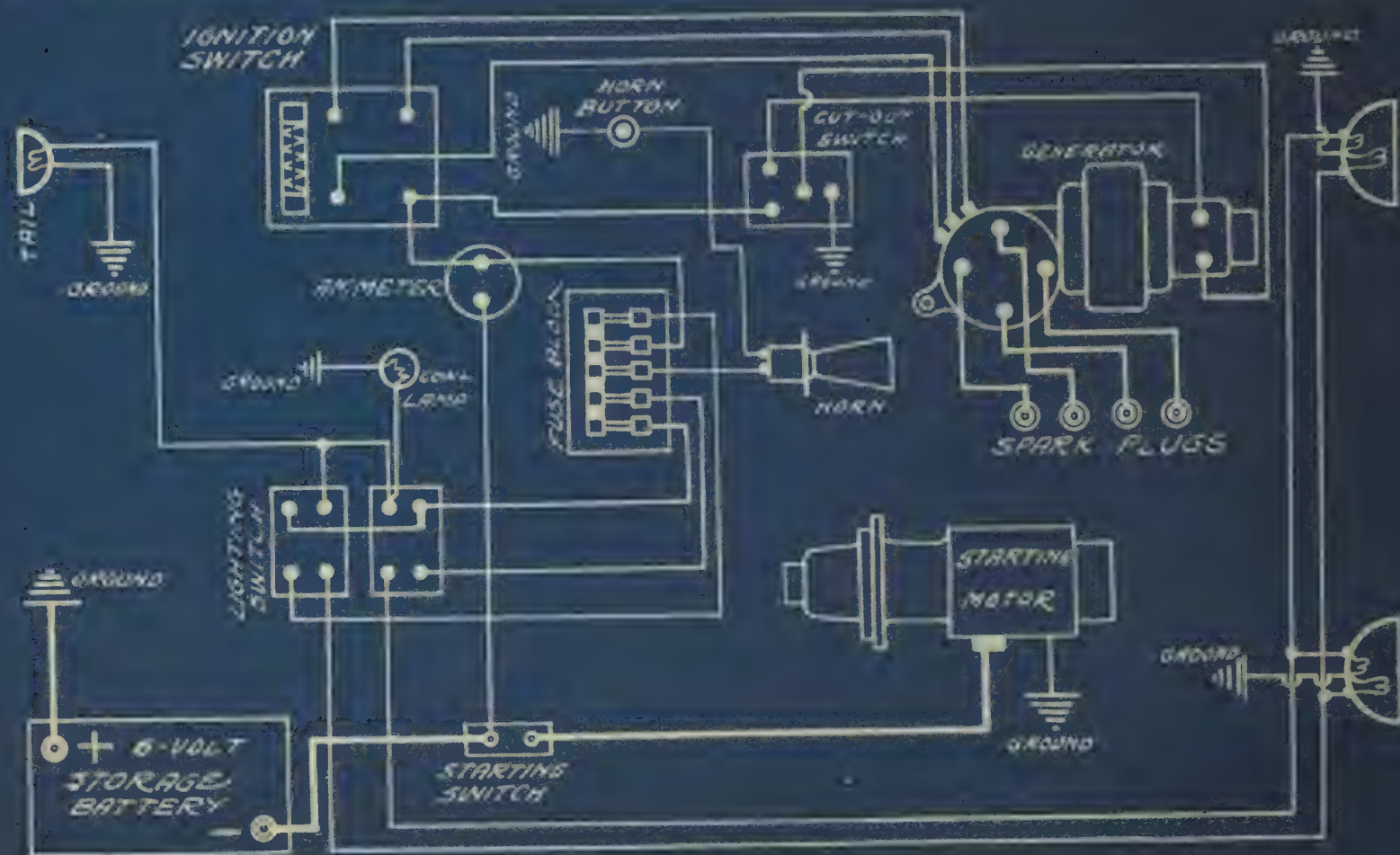
ALLEN 1914-15  
AUTOLITE SYSTEM

"35"

FROM MFRS. BP 95M.111



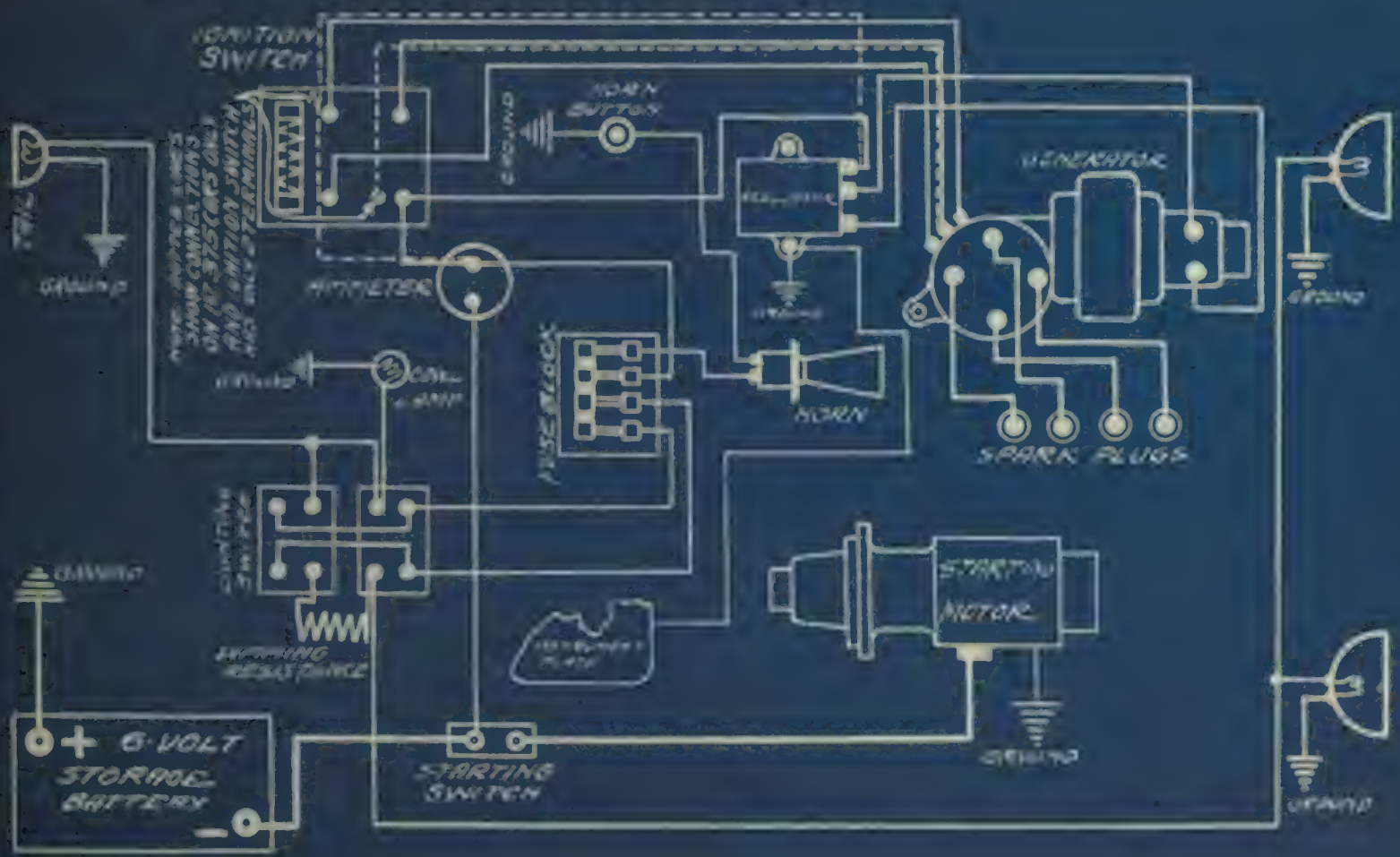
FROM ALLEN BA ASMIG





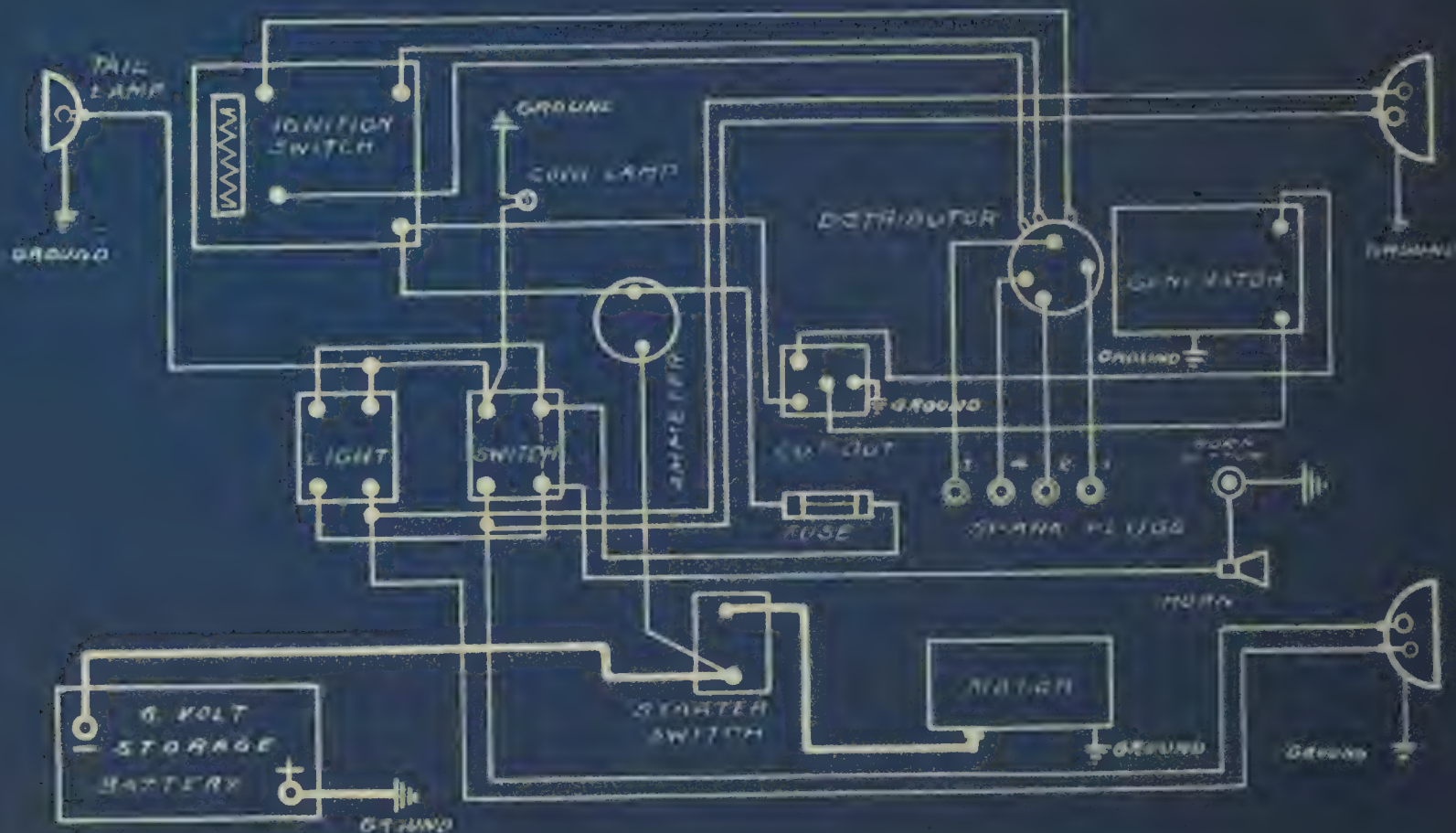
# ALLEN 1916 "37" WESTINGHOUSE SYSTEM WITH DIMMING RESISTANCE

FROM ALLEN BRASS 116



## CLASSIC MODEL

פאקט: 05 4571127

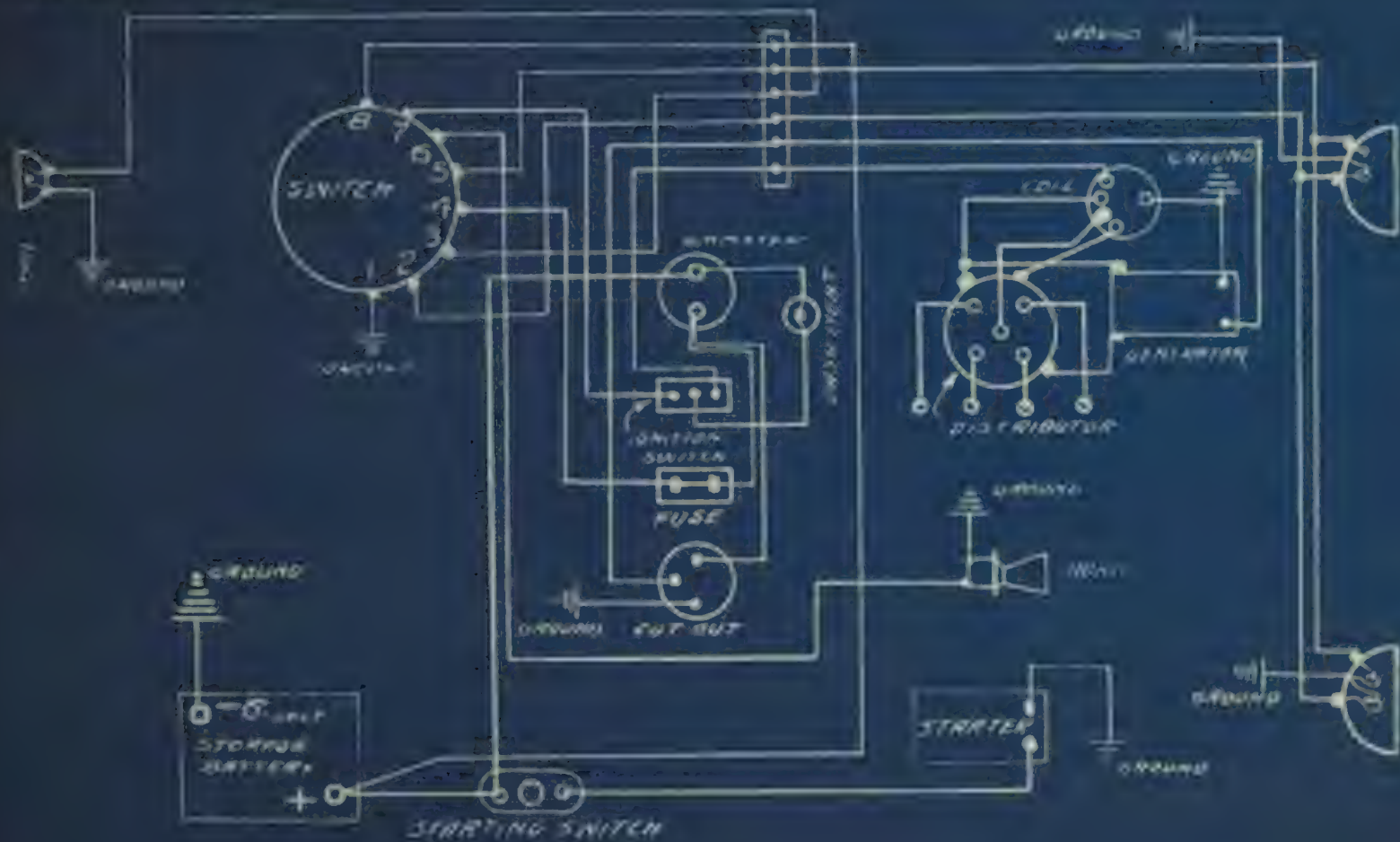


THE UNIVERSITY OF CHICAGO PRESS



# ALLEN 1918-19 "4" & "18-A" AUTOLITE SYSTEM - CONNECTION

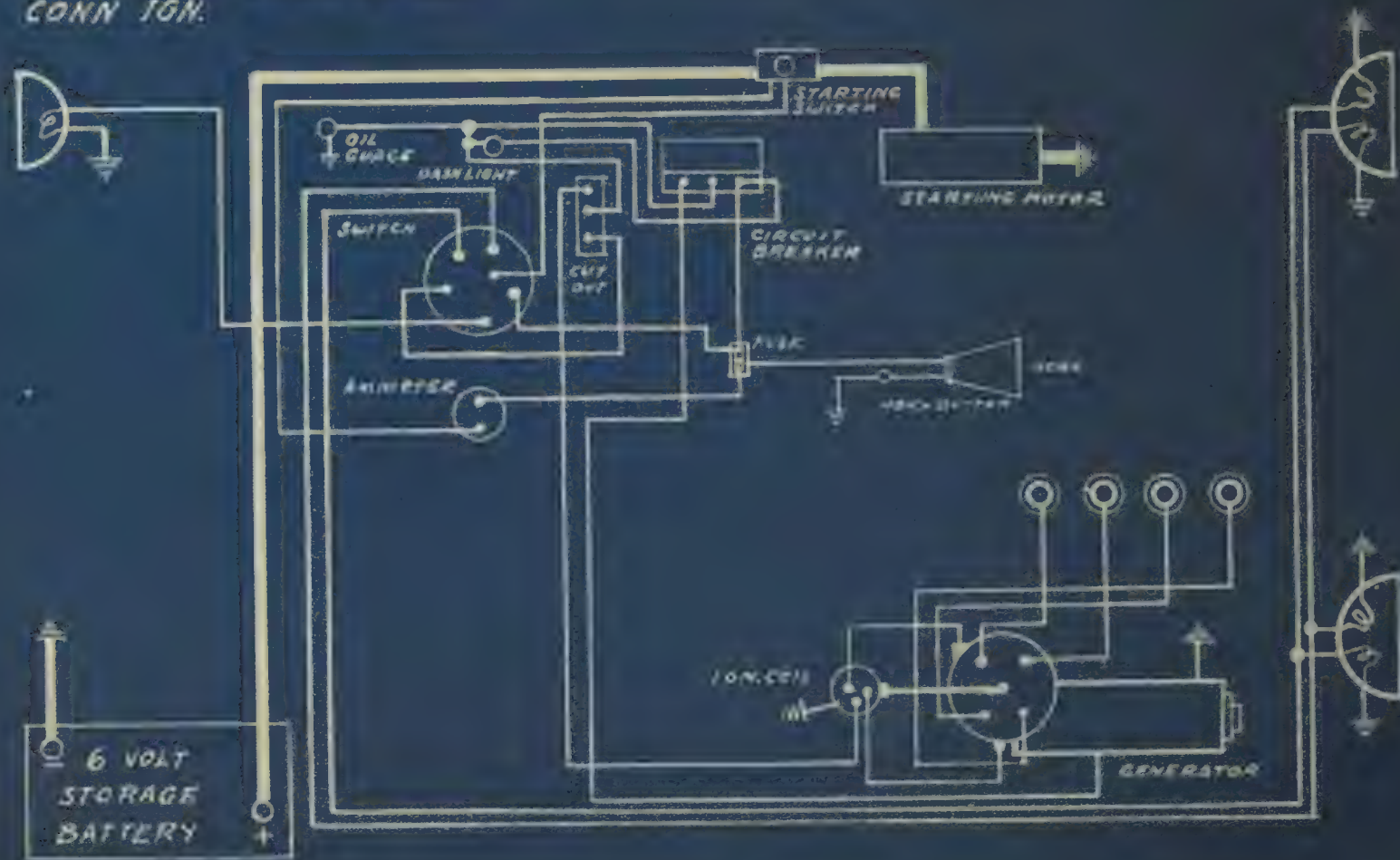
FROM FACTORY - BR. 437140



# ALLEN MODEL 43 1919-1920

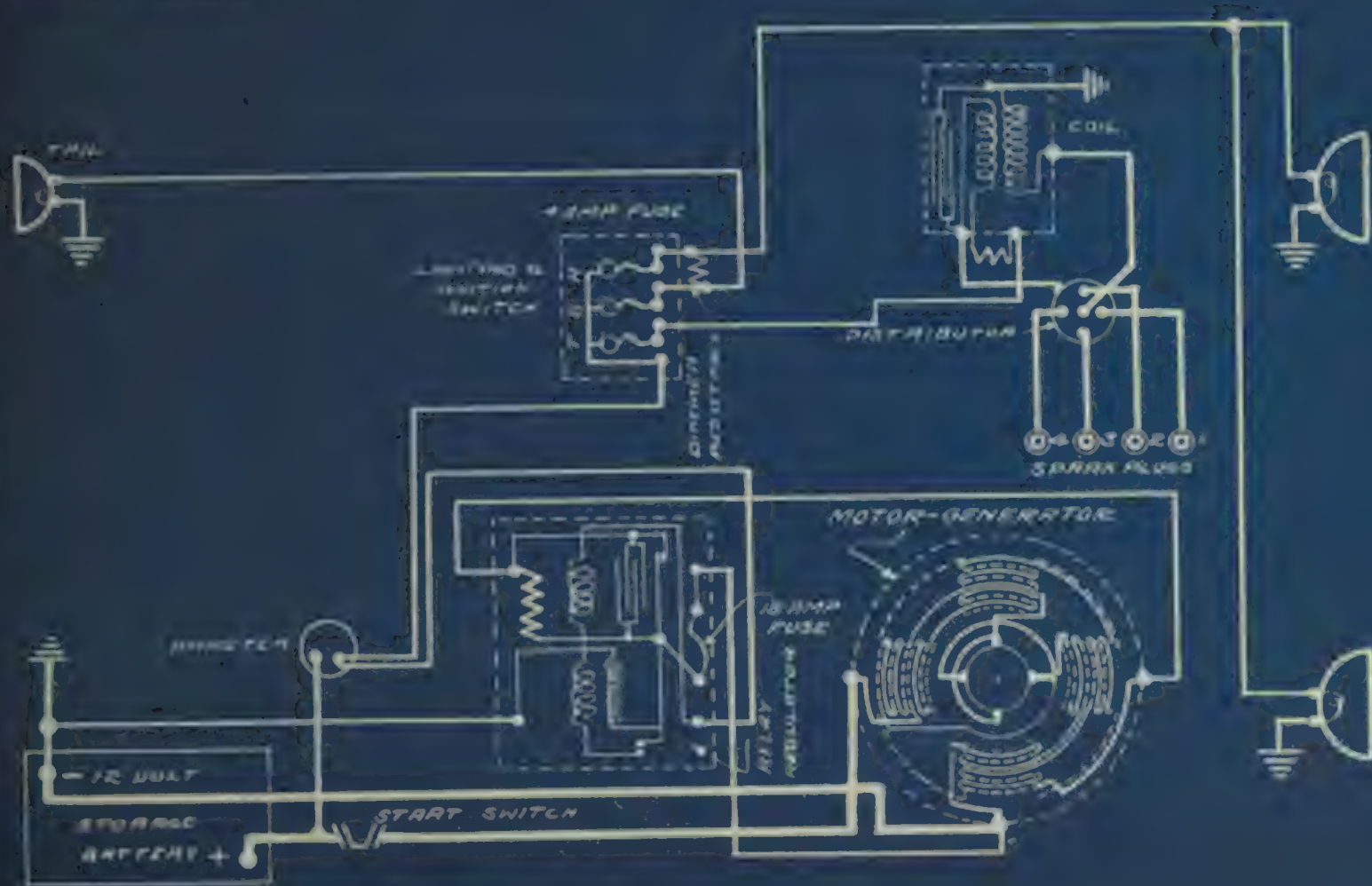
## AUTO-LIGHT START & LIGHT CONNECTION.

FROM MFRS BPN-1-35



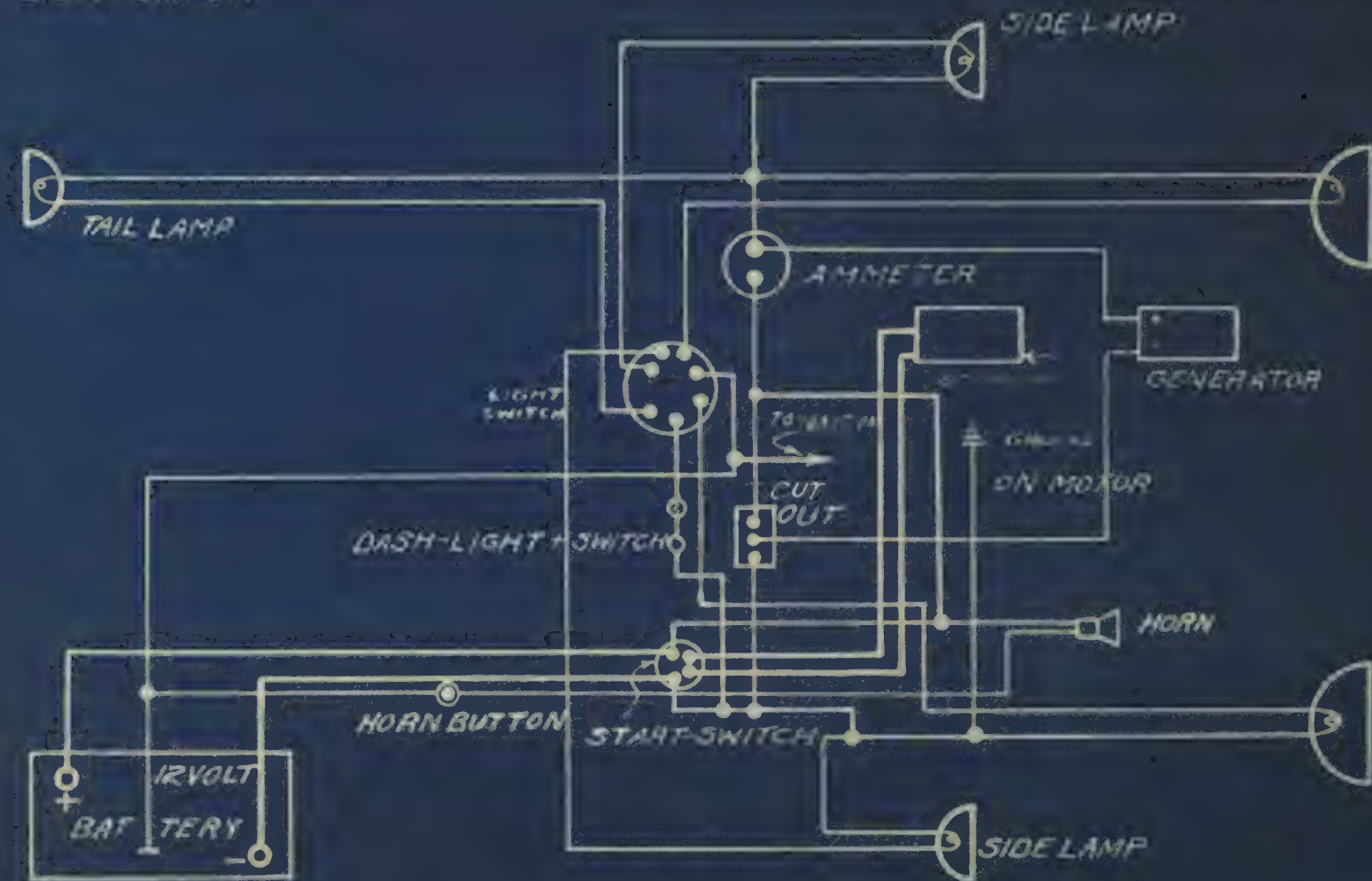
Automotive Equipment Co.  
P.O. Box 100, N.Y.C.





# AMERICAN 1914 DISCO SYSTEM

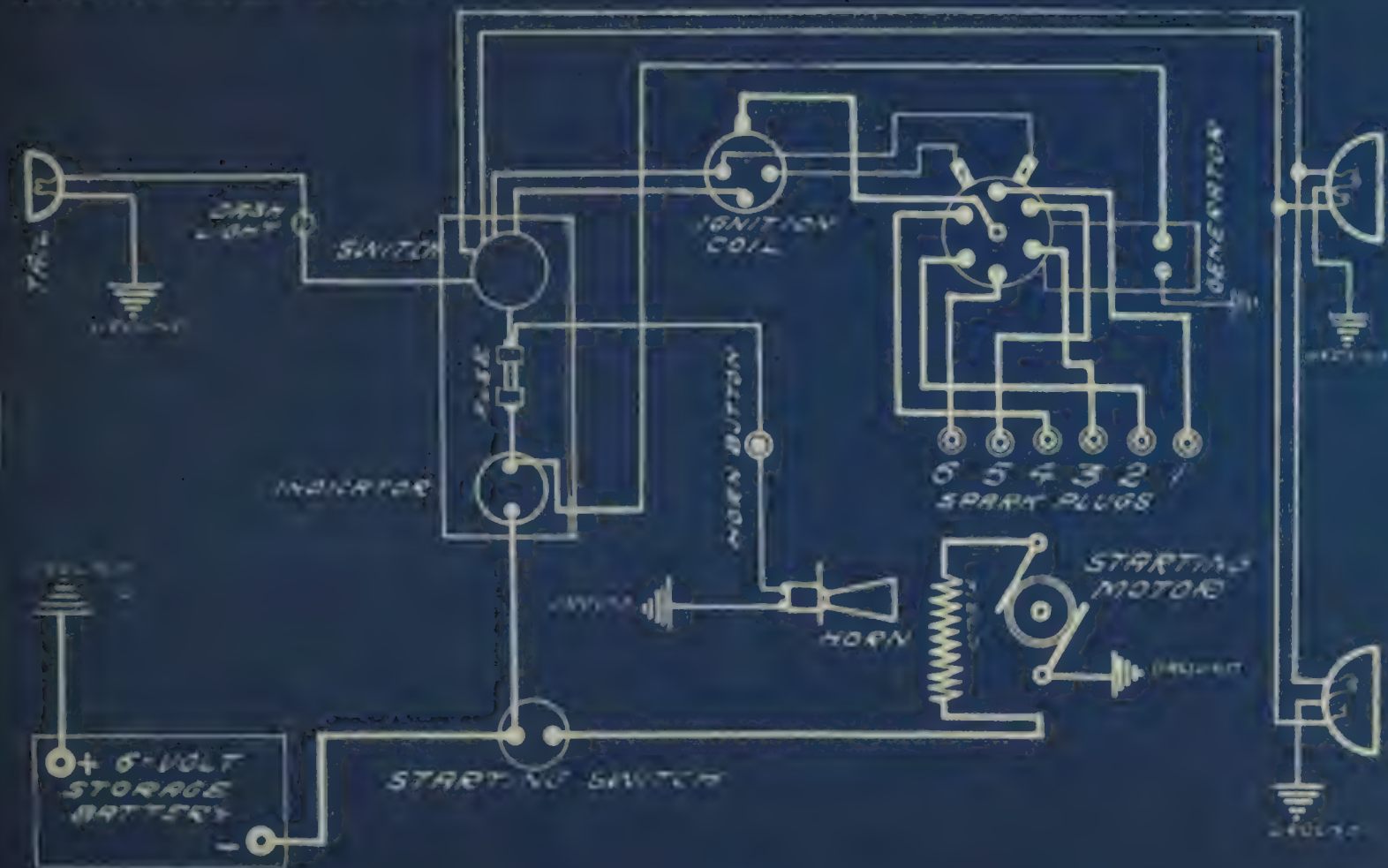
FROM MFRS. BP.





# AMERICAN 1917-1918 "A" WESTINGHOUSE SYSTEM

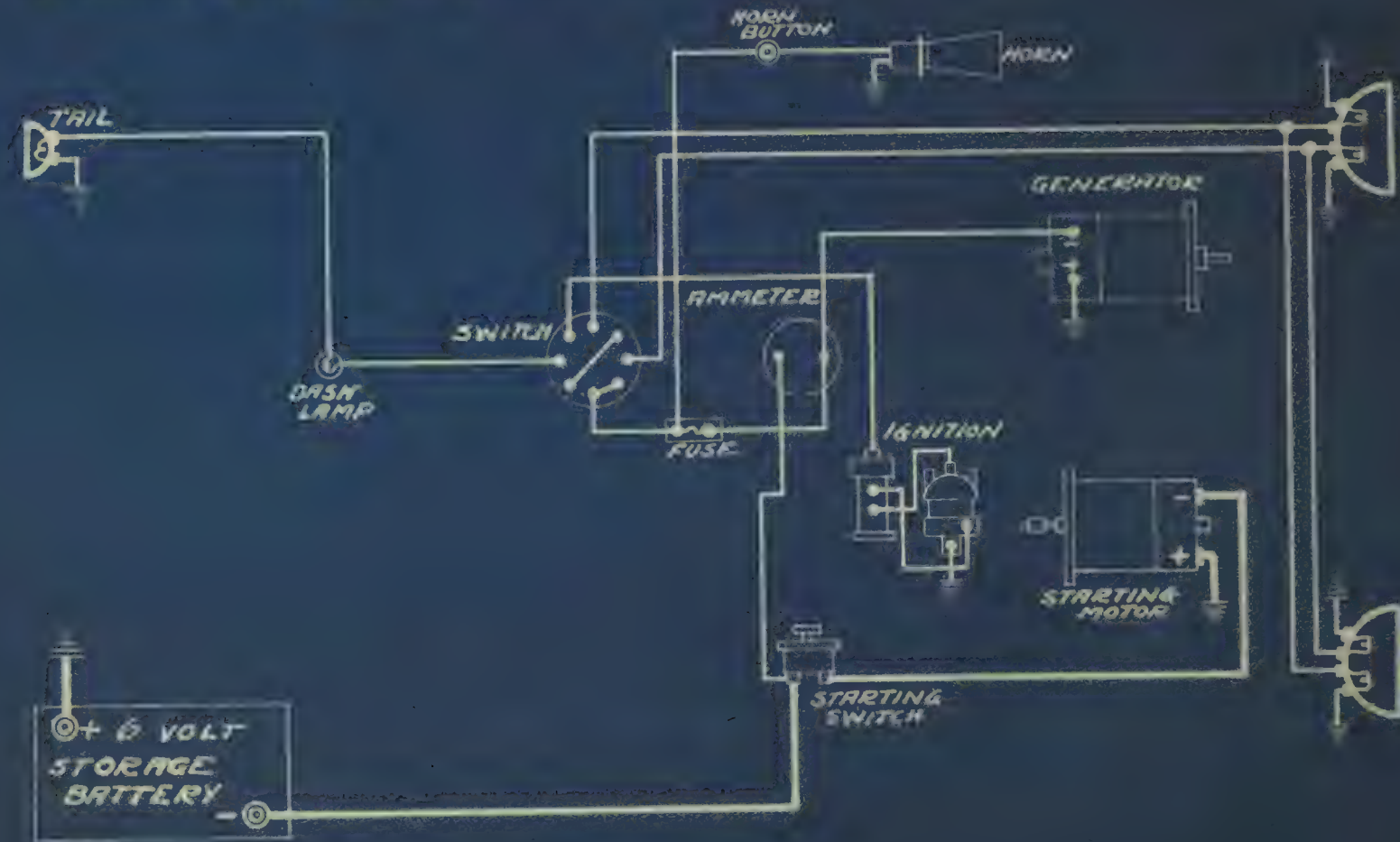
W. H. W. 1111-1111-1111



# AMERICAN MODEL "B" 1920

WESTINGHOUSE STARTING & LIGHTING SYSTEM  
AT WATER KENT IGNITION

FROM H.P.S. DRWG.

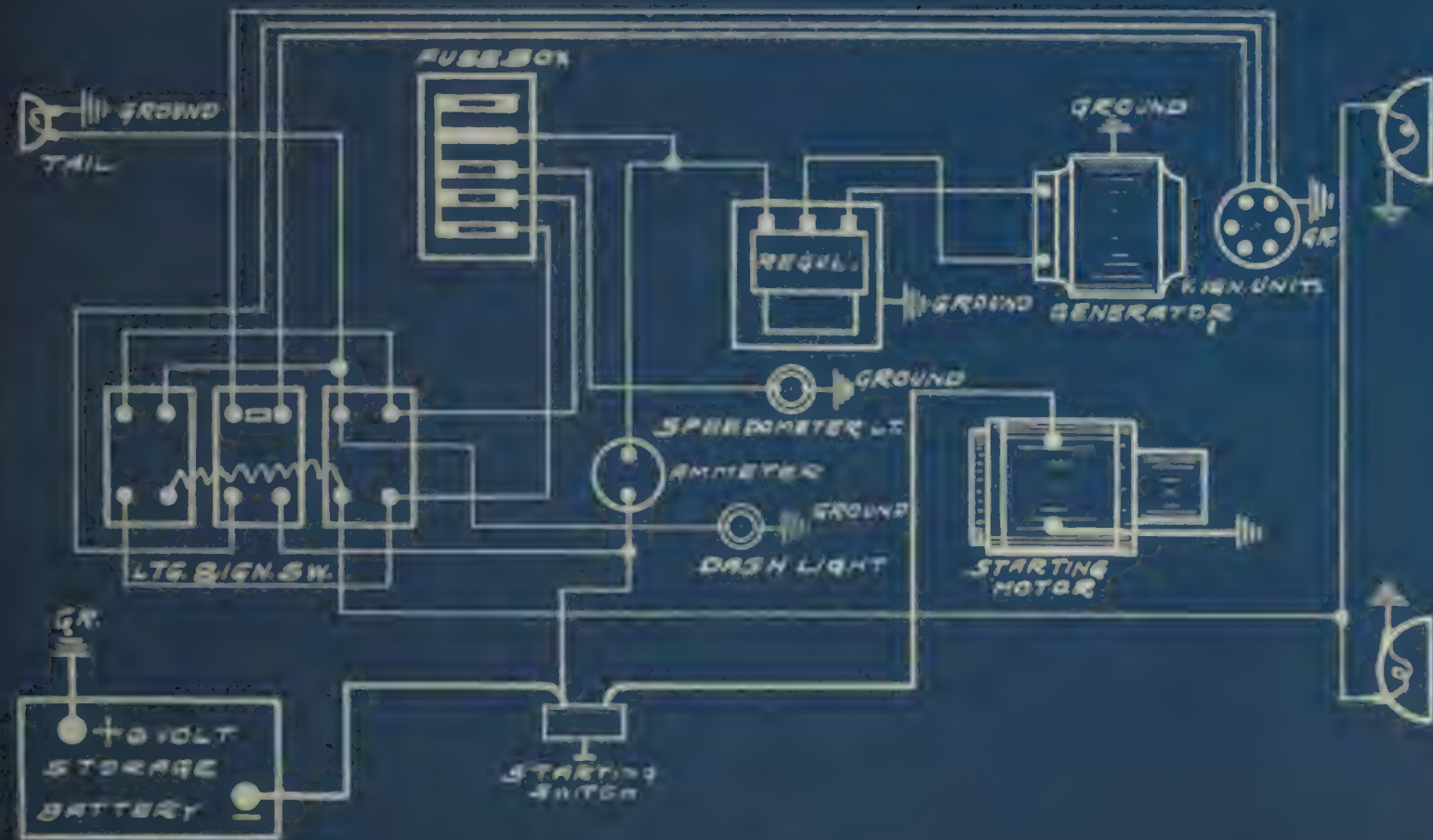




# ANDERSON 1916 100A-B

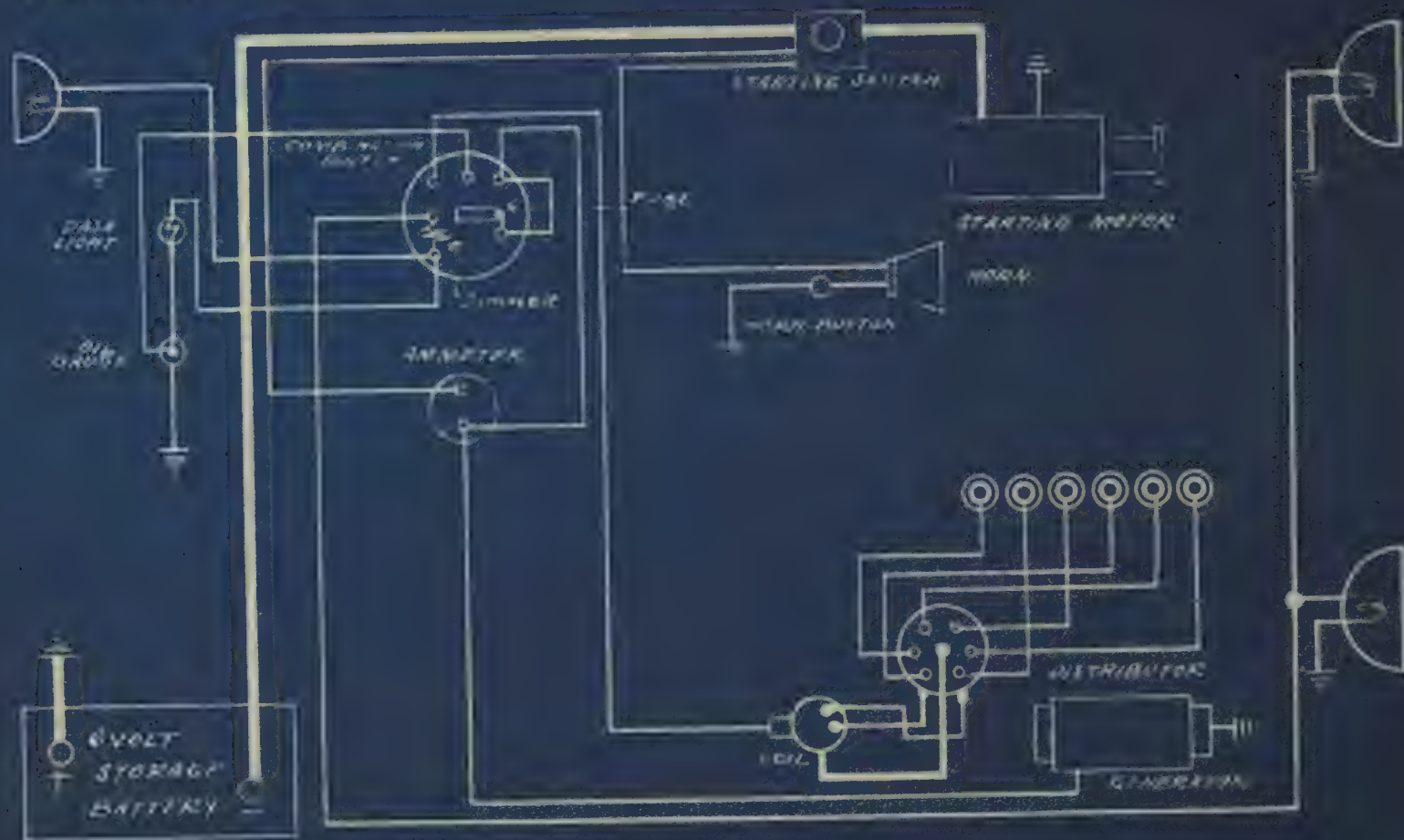
WESTINGHOUSE SYSTEM

FROM WEST PLATE 38



ANDERSON 20 1919-1920  
WESTINGHOUSE SYSTEM  
CONNECTION

20 AMP. 120 V. 1/2 H.P. 1/2 H.P.

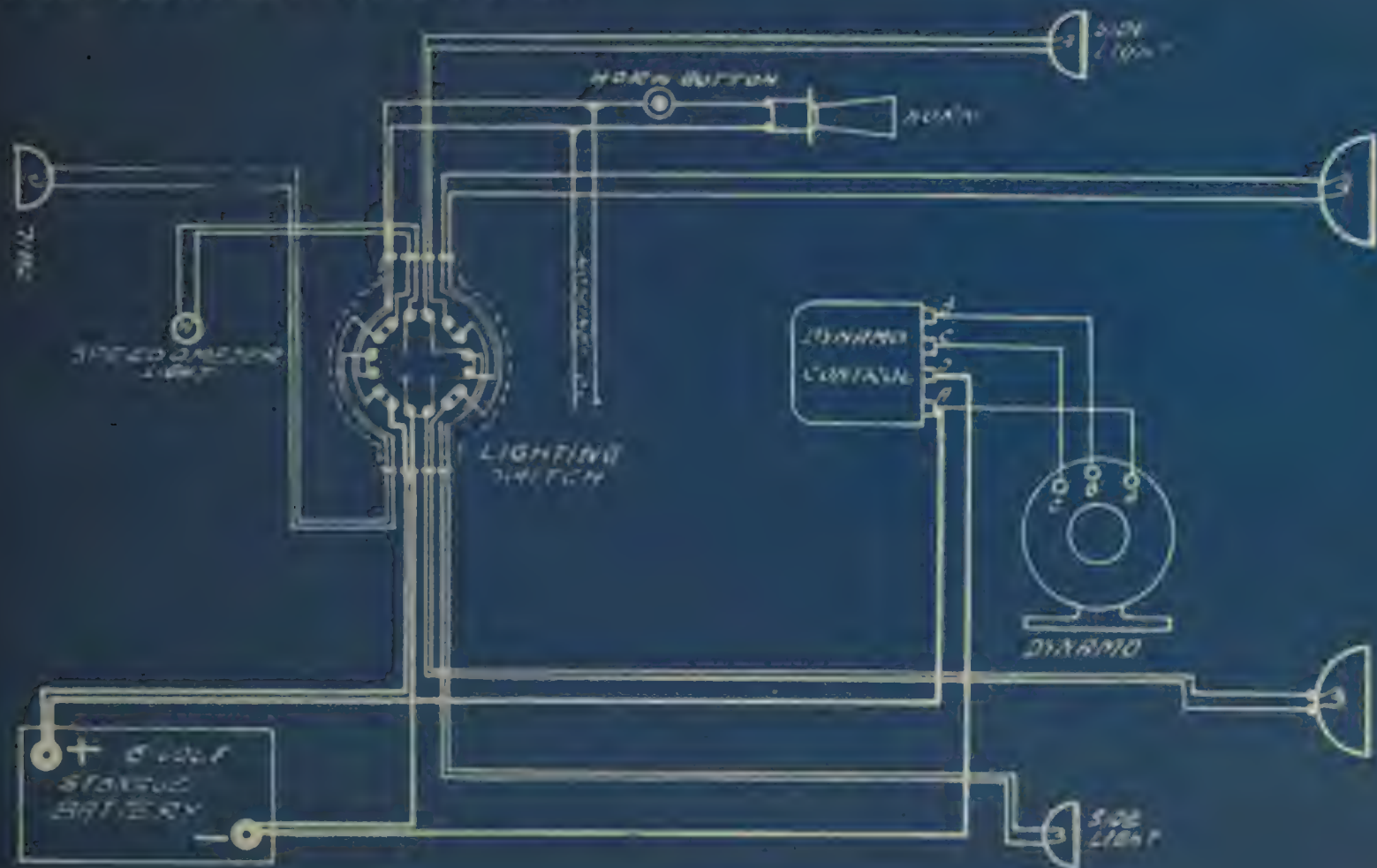


Anderson 20 1919-1920  
Westinghouse System  
CONNECTION



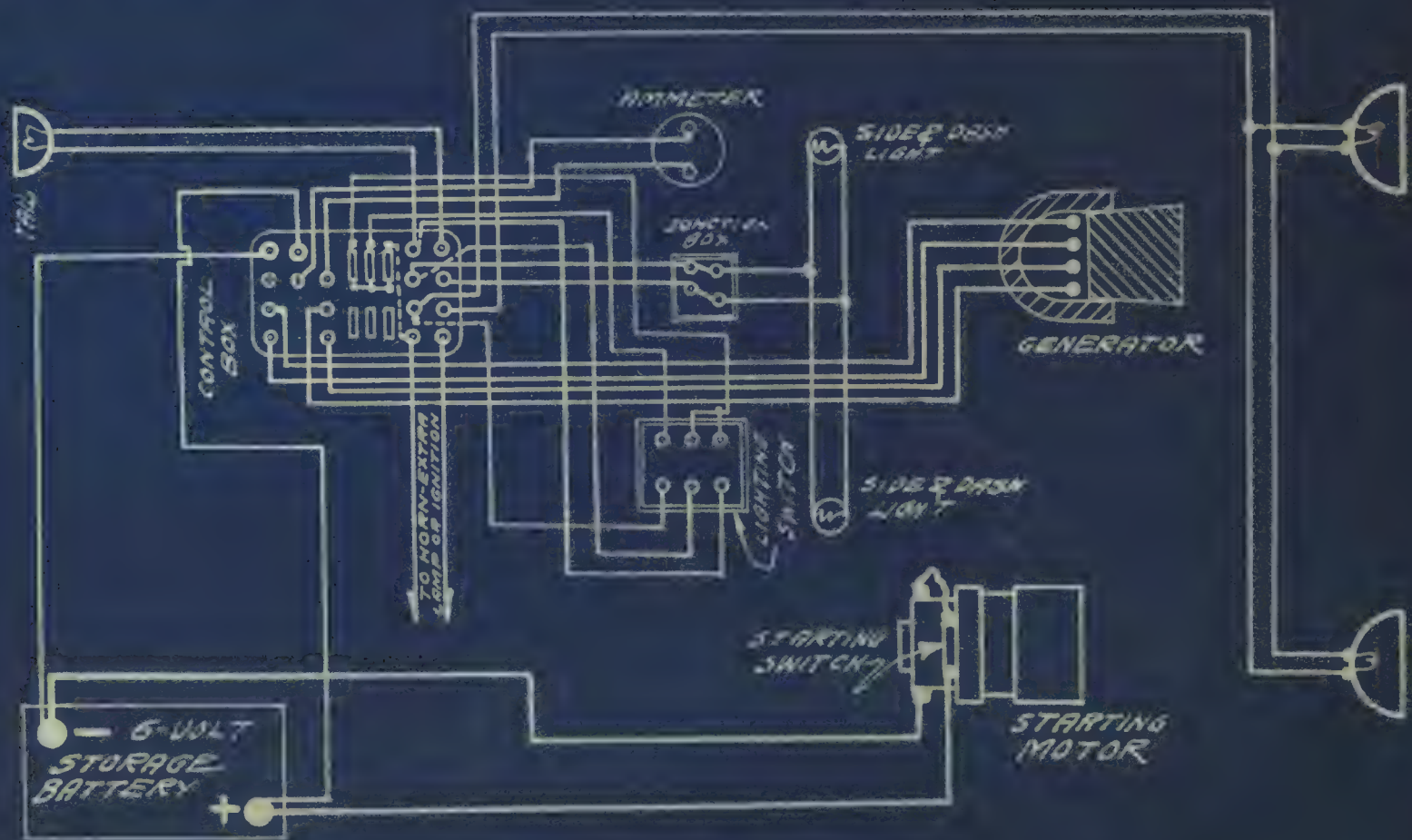
# APPERSON 1913 WARD-LEONARD DYNAMO SYSTEM

FROM P.B.R. 3890



# APPERSON 1913 "4-45" & "4-55" ESTERLINE SYSTEM

FROM MFRS BR 3889

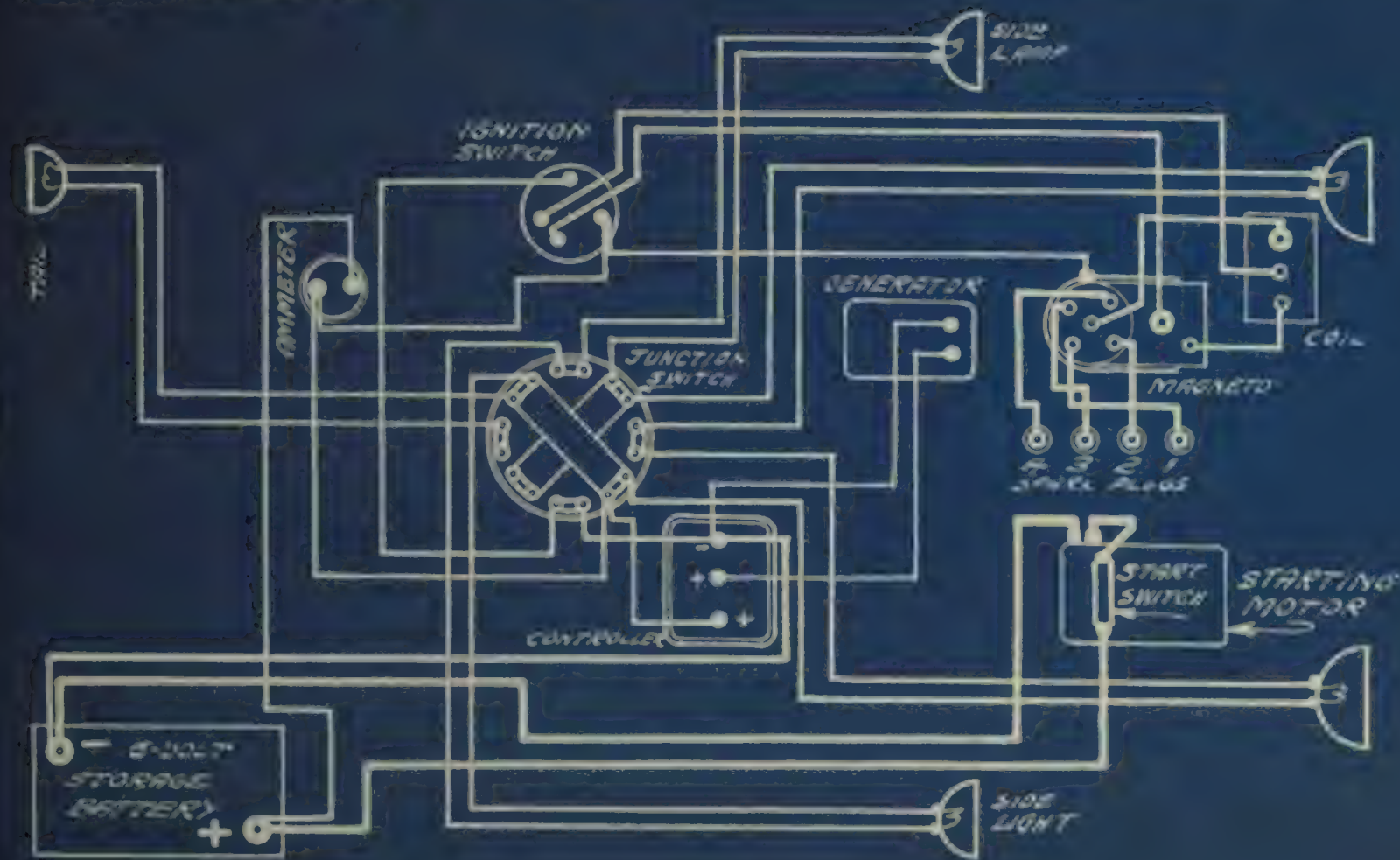


COMPASS 1913 OF  
AUTOMOTIVE PUBLISHING CO.  
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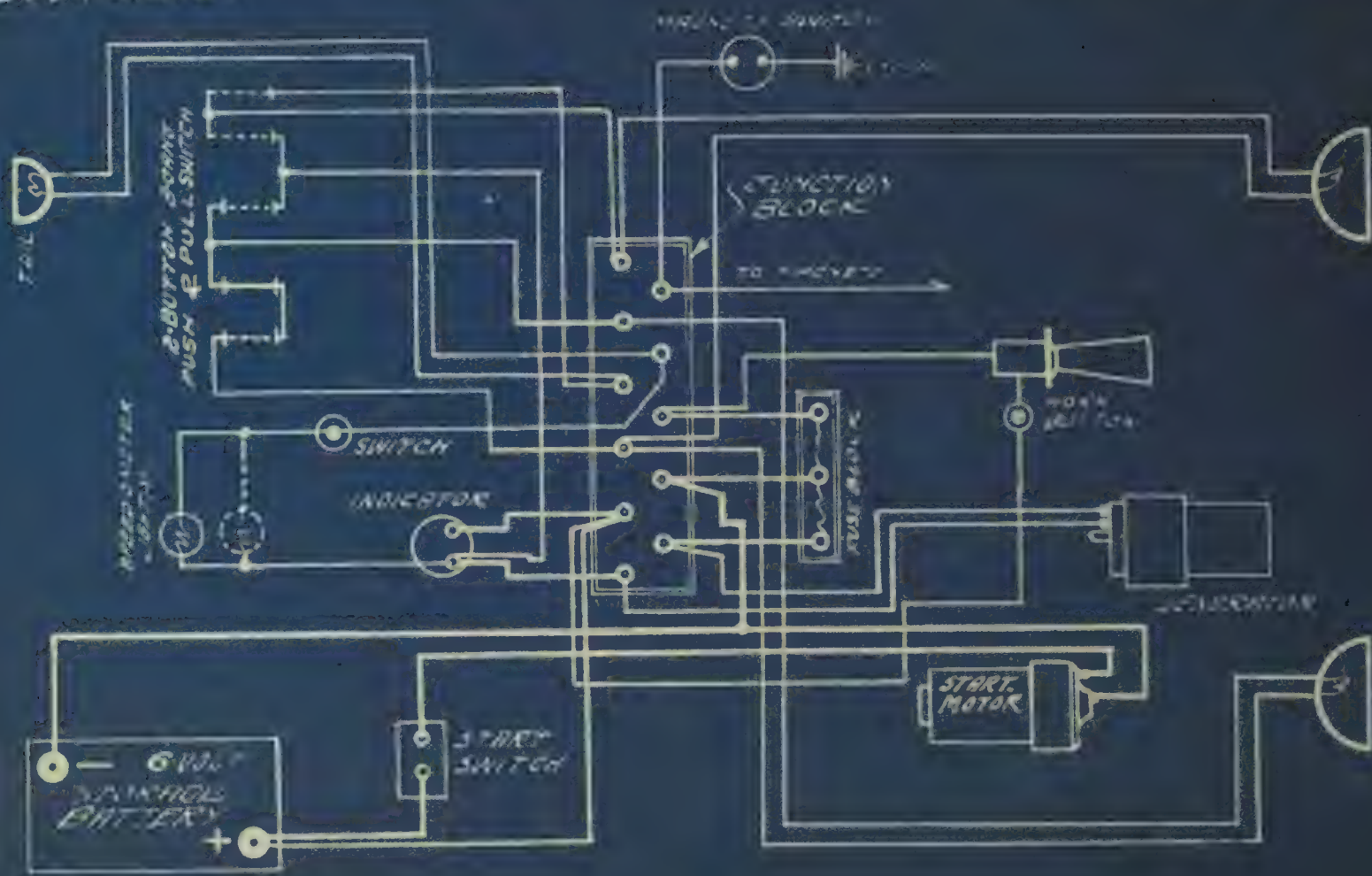
# APPERSON 1913 "55" & "45" GARY & DAVIS SYSTEM

FROM MFRS. B.F. 1935



APPERSON 1914 "4-45" "6-45" "6-58"  
 BUUR SYSTEM

FROM NOTE BR 2330

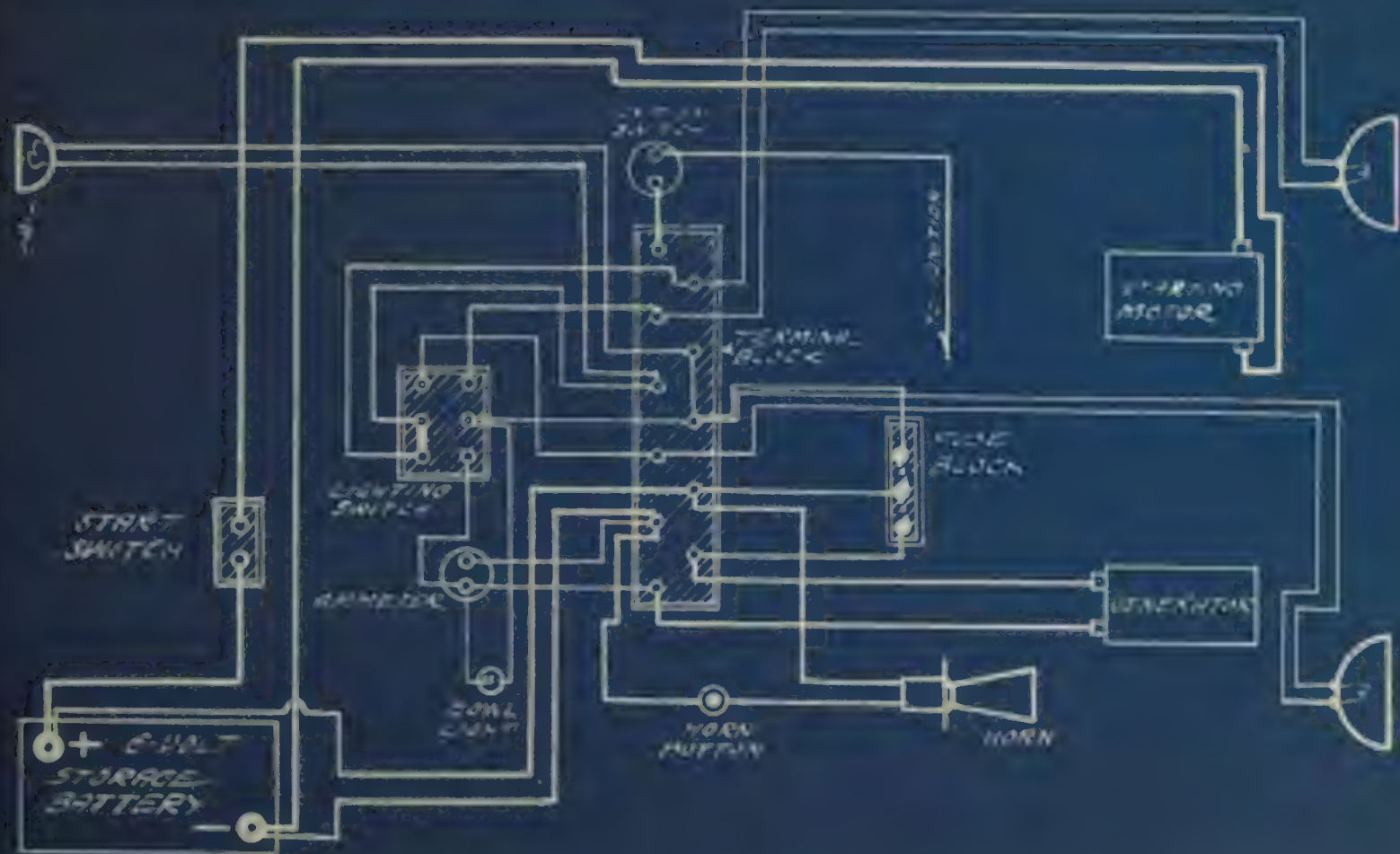


THE FIRST  
 APPERSON BUUR SYSTEM



# APPERSON 1915 "4-40" "6-45" BITUR SYSTEM

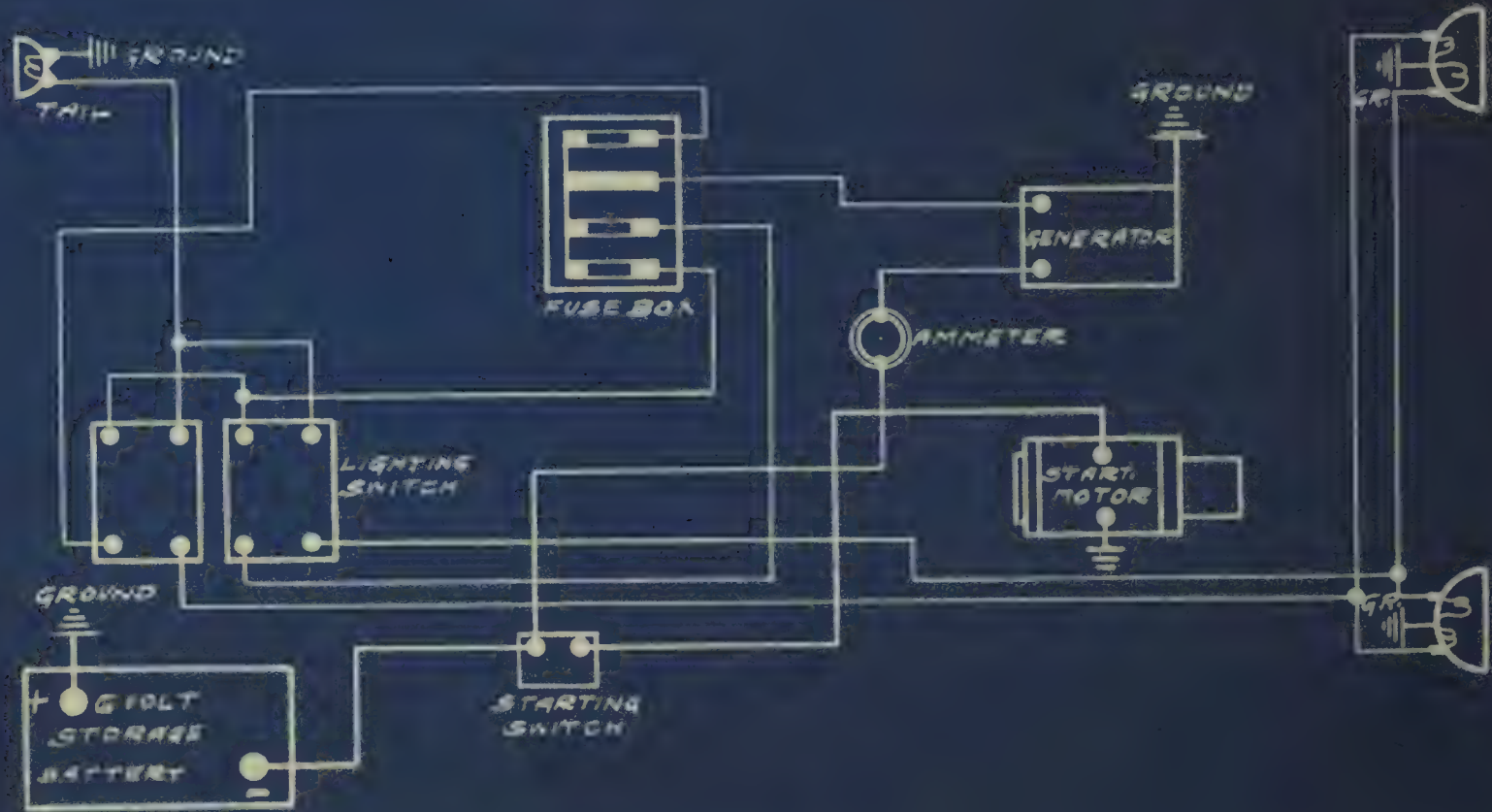
FROM APP 4251-B



# APPERSON 1915

WESTINGHOUSE SYSTEM

FROM WEST PLATE 39

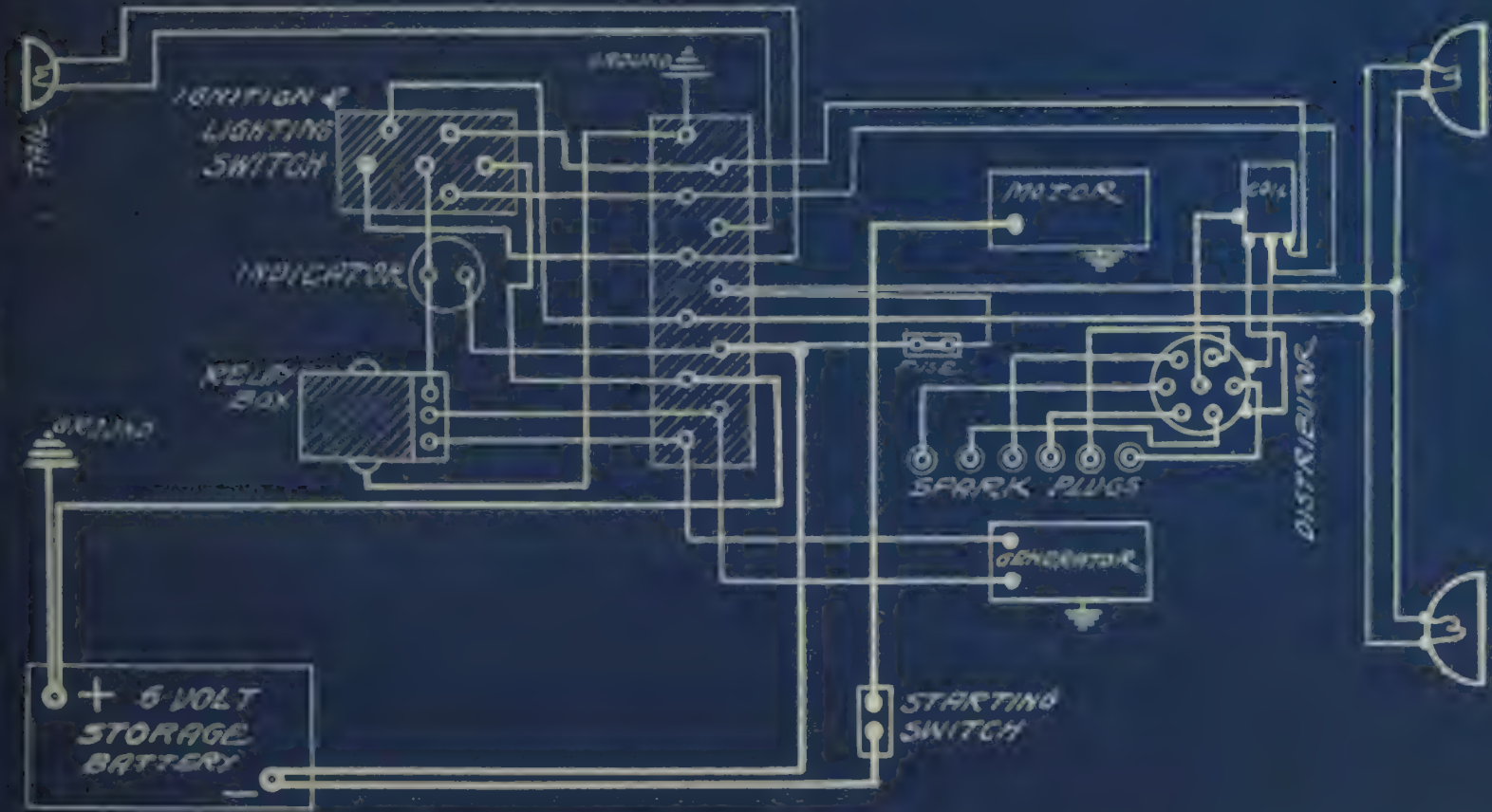


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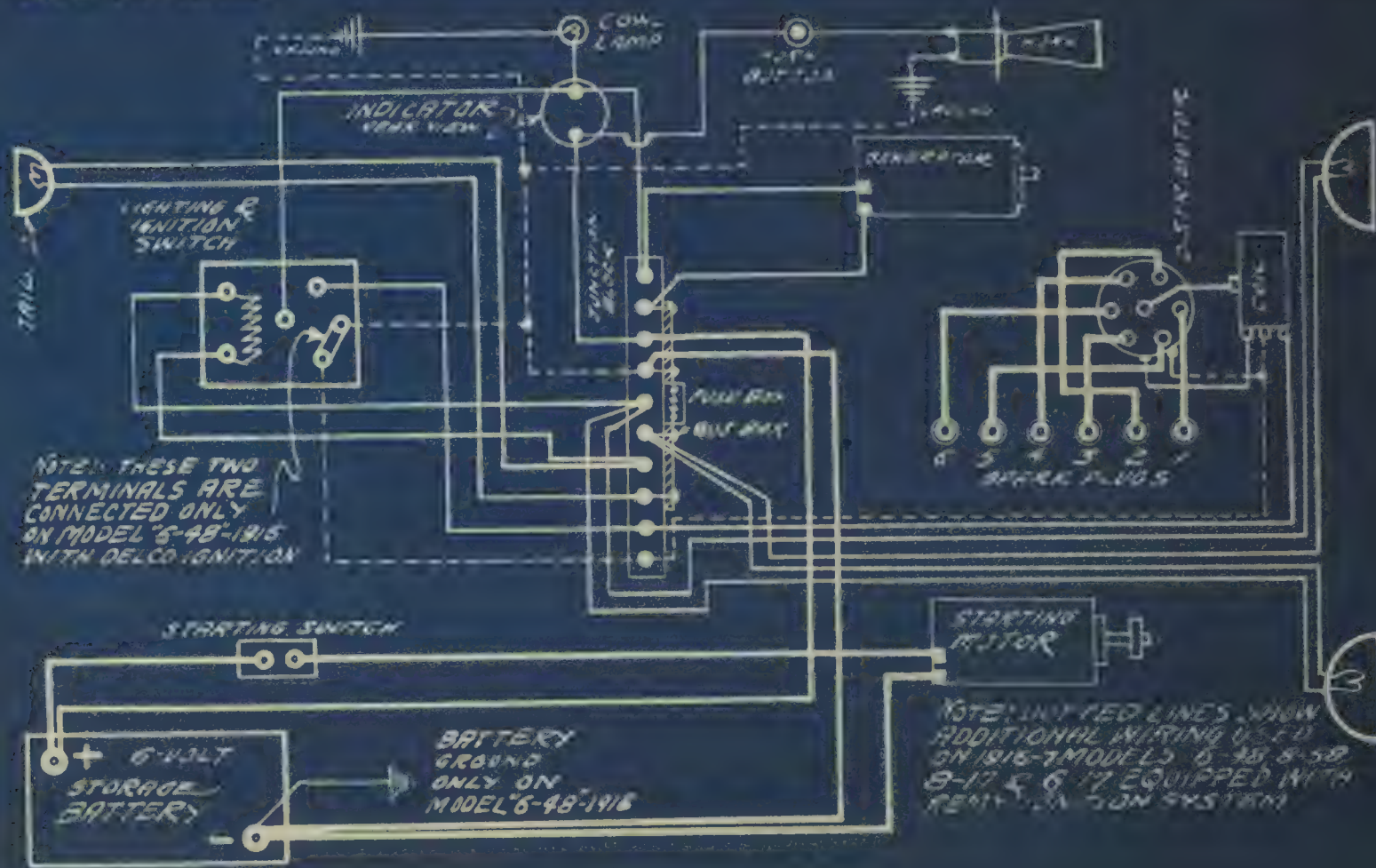


# APPERSON 1916 "6-48" "8-58" WESTINGHOUSE SYSTEM

FROM MFRS BP 5357



APPERSON 1916 "6-48" "858" & 1917 "8-17" "6-17" FROM WARS AP 5151 & 5398  
 BITUR SYSTEM

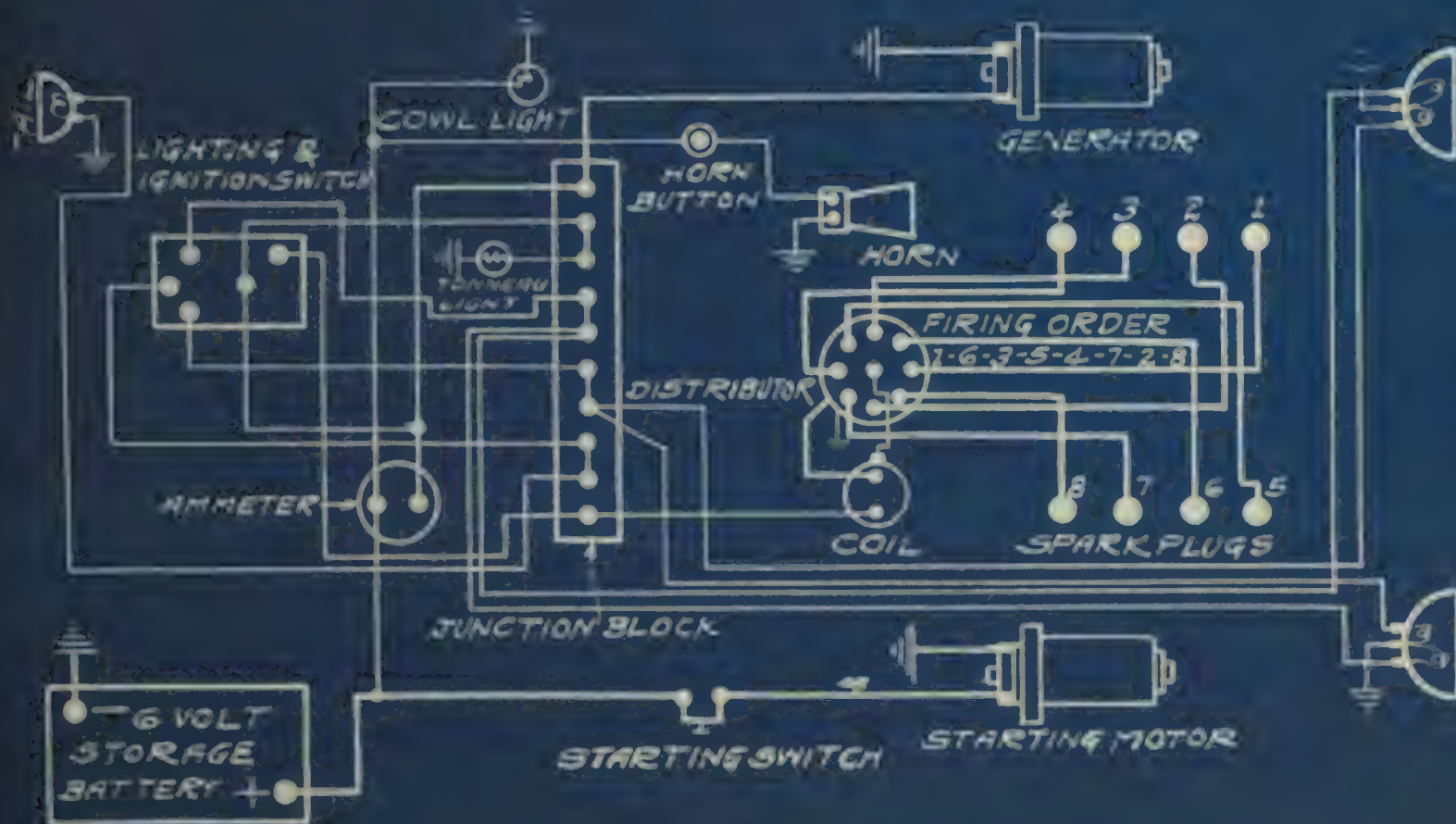




APPERSON 1918 - 8-18-A - 1919

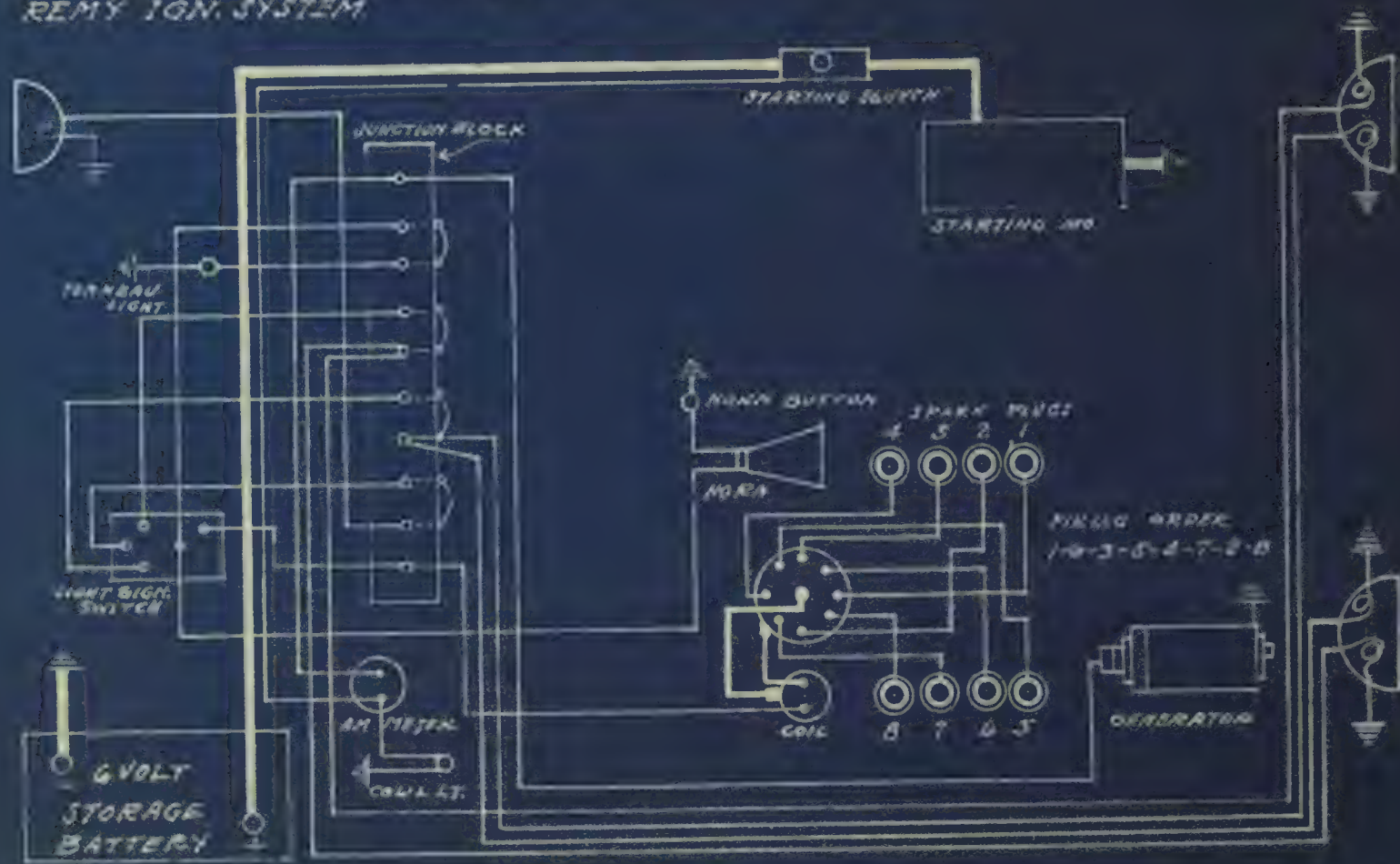
BIJUR SYSTEM

FROM MFRS. B.P. 7480



# APPERSON MODELS 618, 619, 620 1918-1919-1920 BUJUR STARTING & LIGHTING REMY IGN. SYSTEM.

PLANT 7503, DP 2640-25



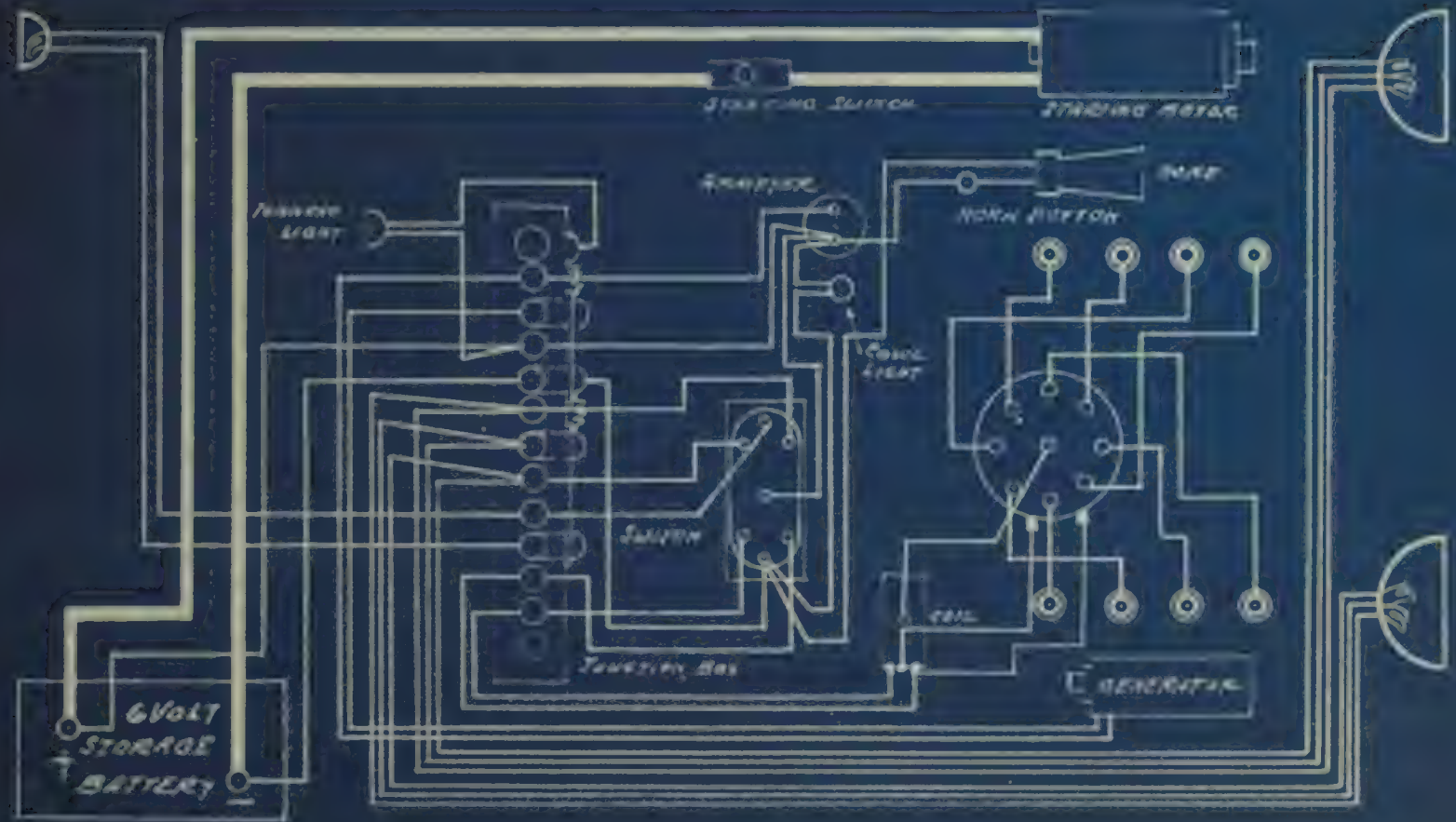
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 Automotive Publishing Co.  
 Chicago, U. S. A.



APPERSON 1919-20  
 DUOR STARTING & LIGHTING  
 REMY IGM.

"8-18"

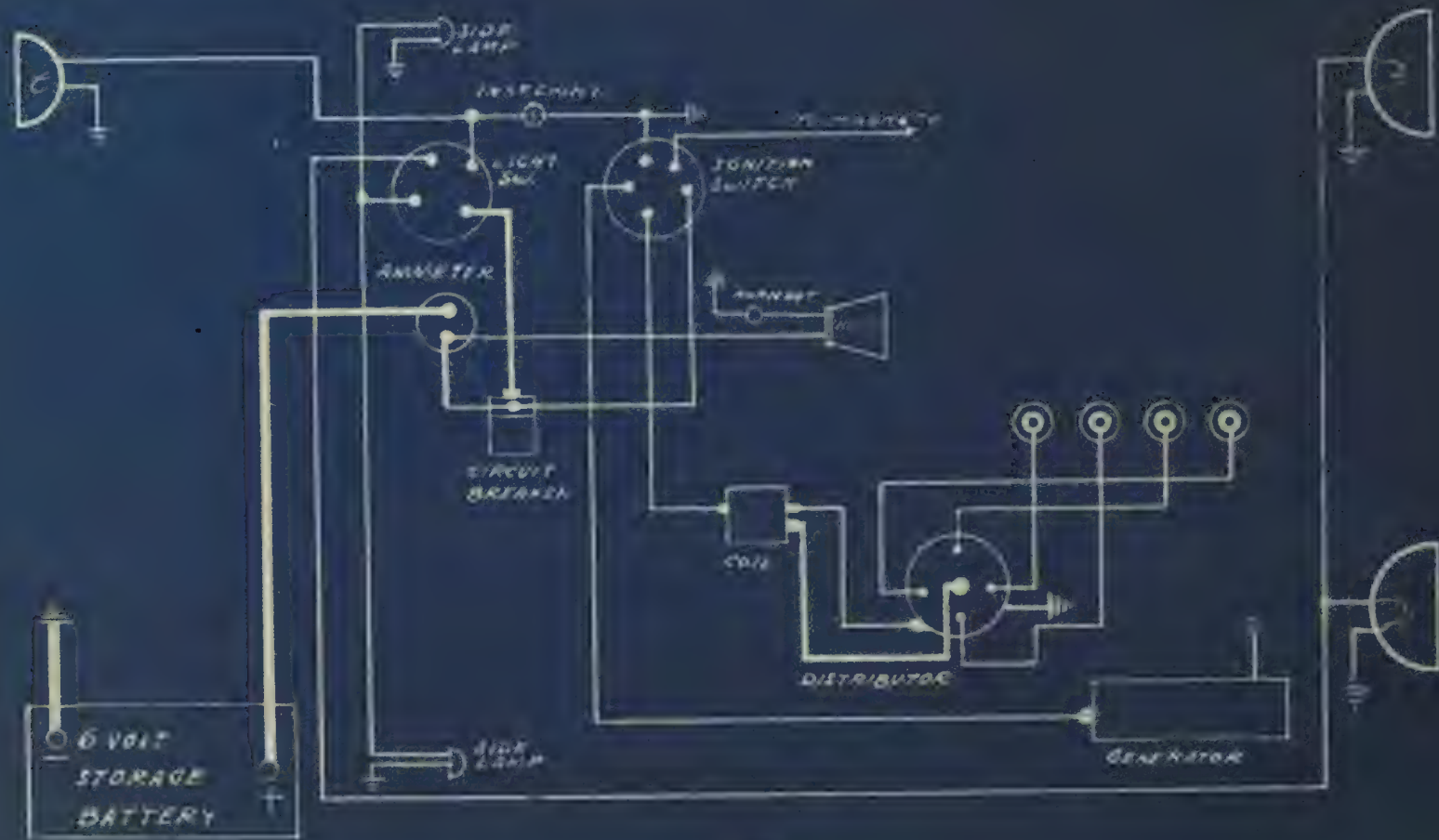
FROM MFG. INST. BOOK



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# ATTERBURY USA CLASS 'B' MILITARY TRUCK 1920 DELCO SYSTEM

FROM MFRS INST BOOK

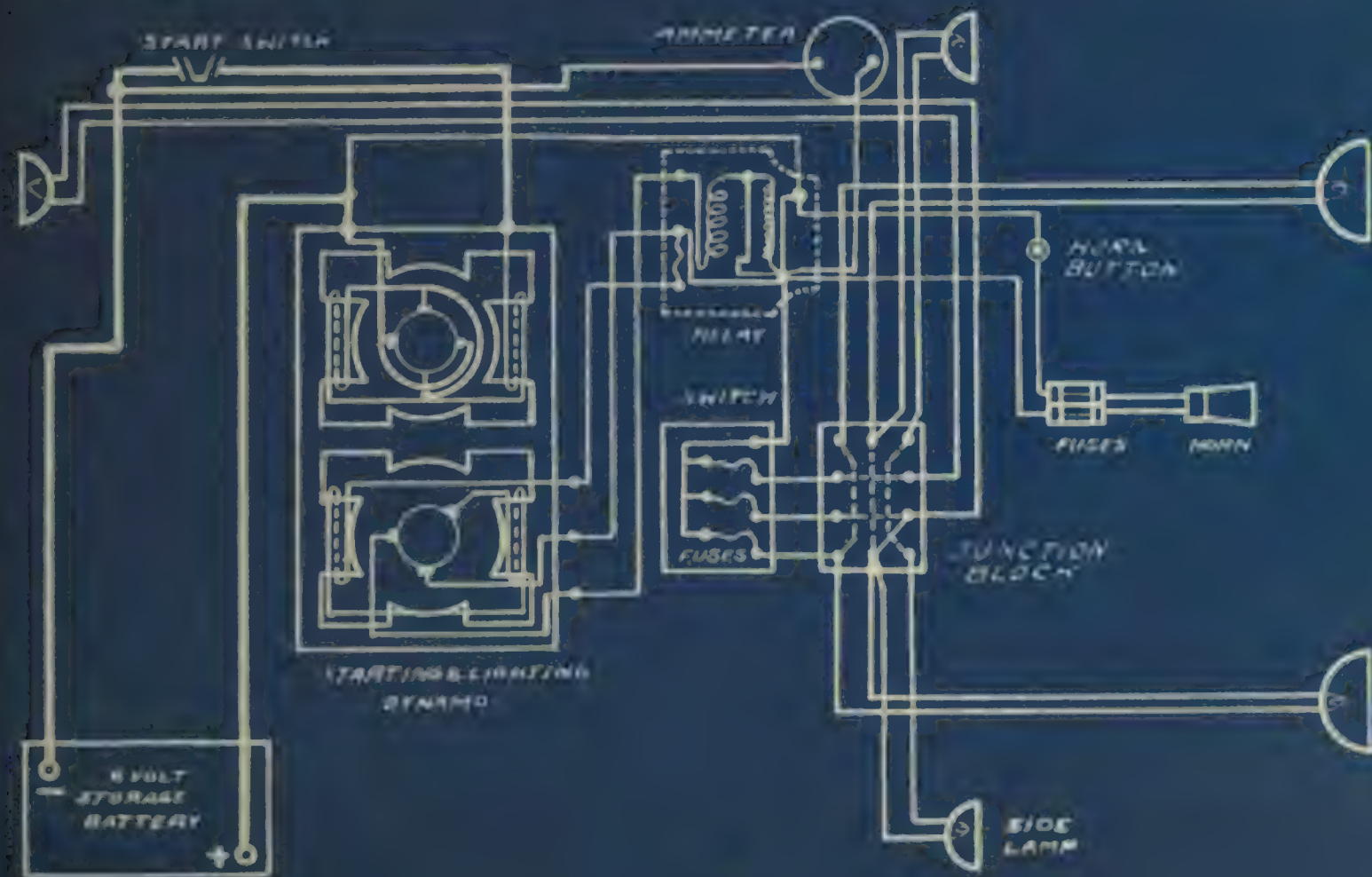




AUBURN  
Model 2534m

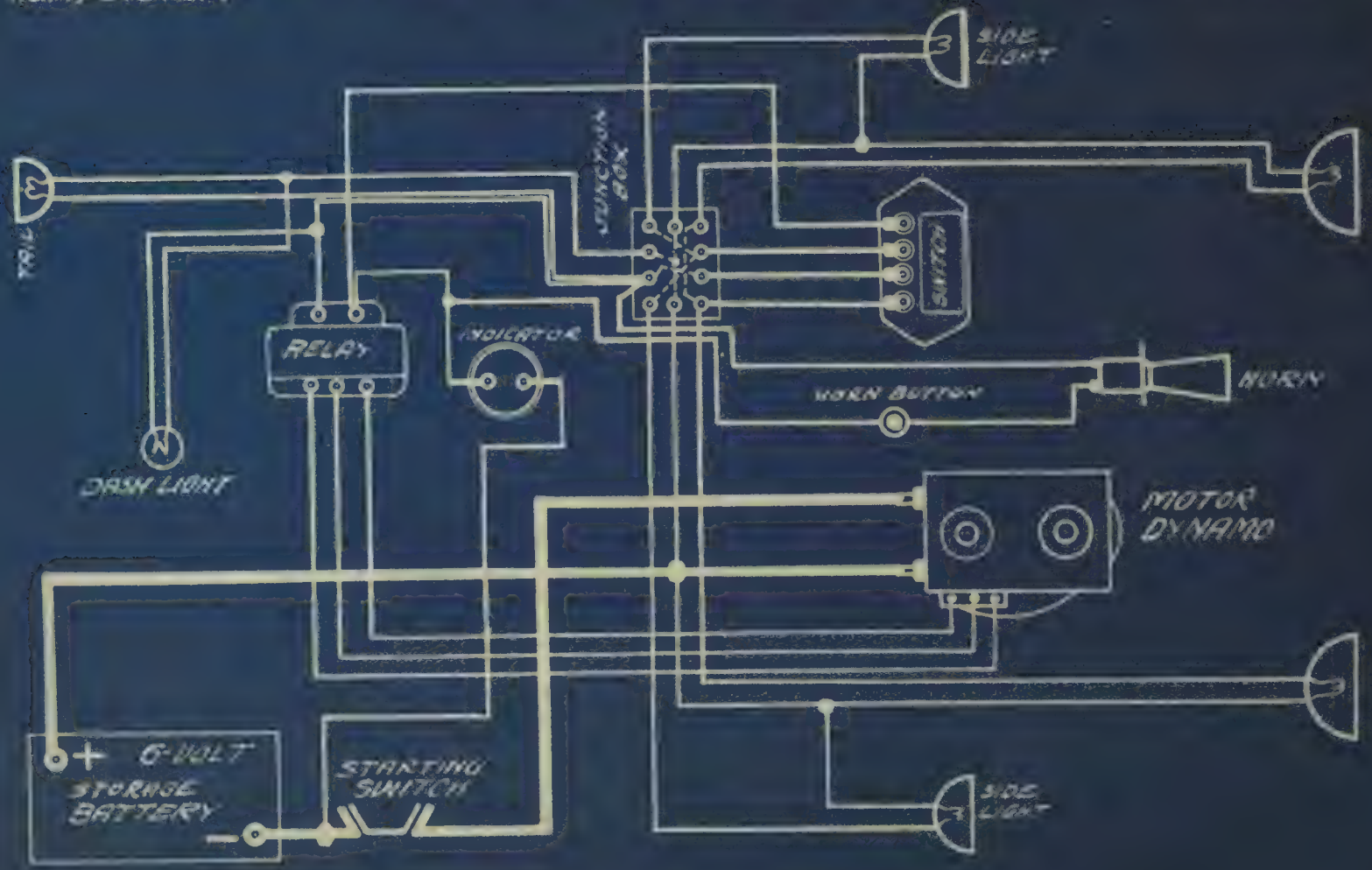
1913-14-15

FROM REPAIR MANUAL



**AUBURN 1914 4-40-4-41-6-45 & 6-46**  
**REMY SYSTEM**

FROM MFRS. PLATE



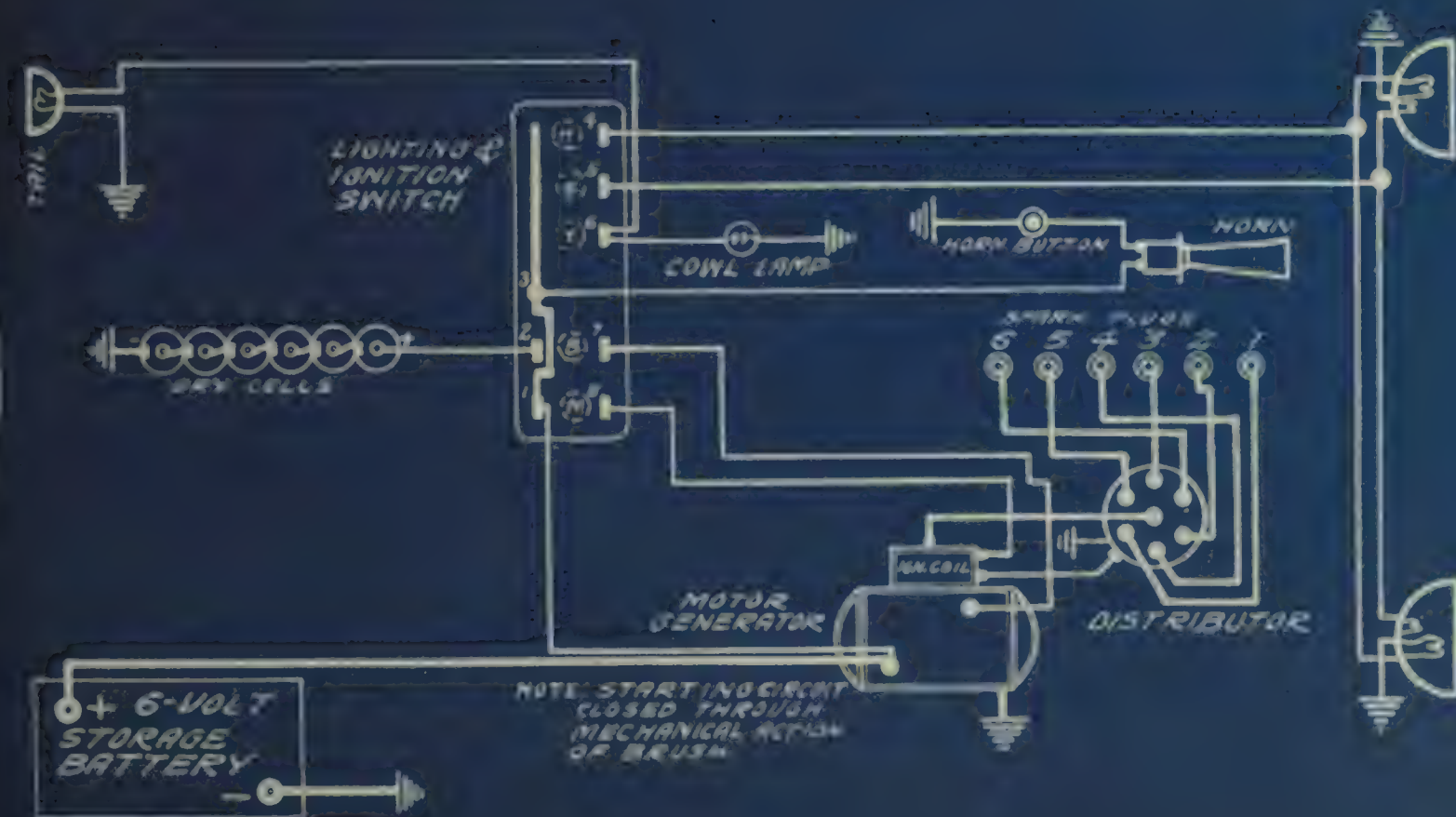
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# AUBURN 1915 "6-40"

DELCO SYSTEM

FROM DELCO MANUAL



AUBURN 1916  
REMY SYSTEM

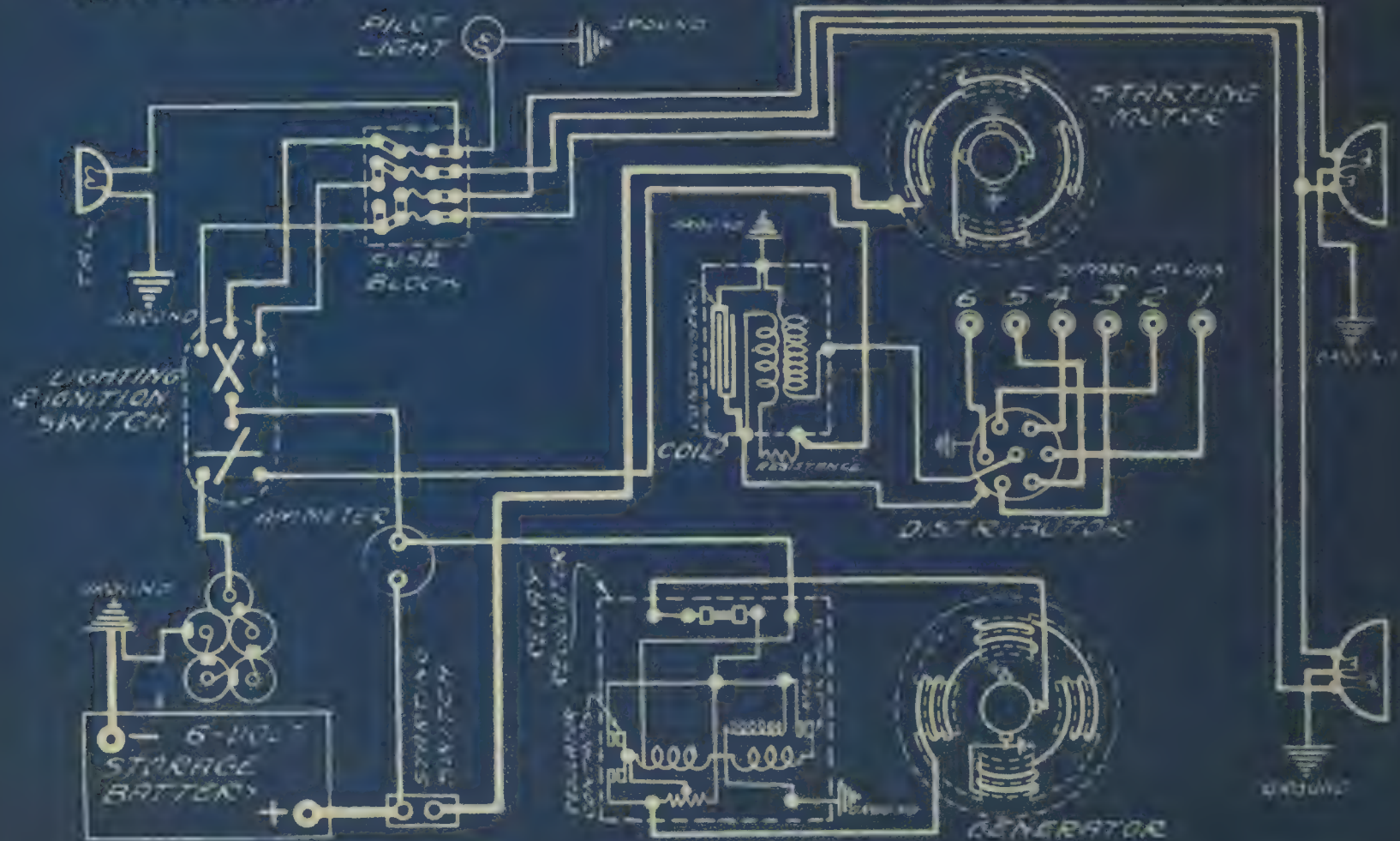
1916

4-38

6-38

6-90

FROM REMY MANUAL

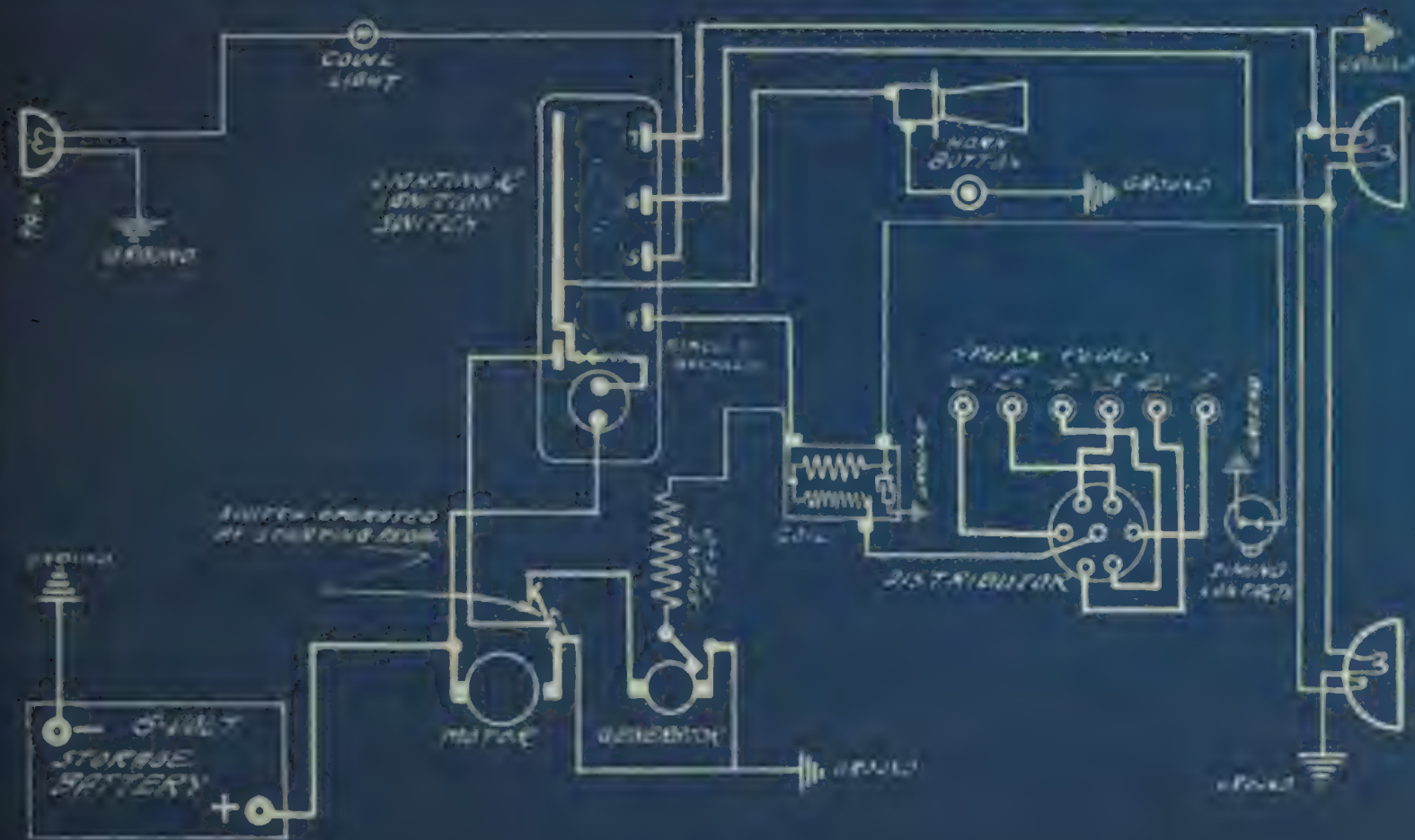




# AUBURN 1916 "6-40-A"

## DELCO SYSTEM

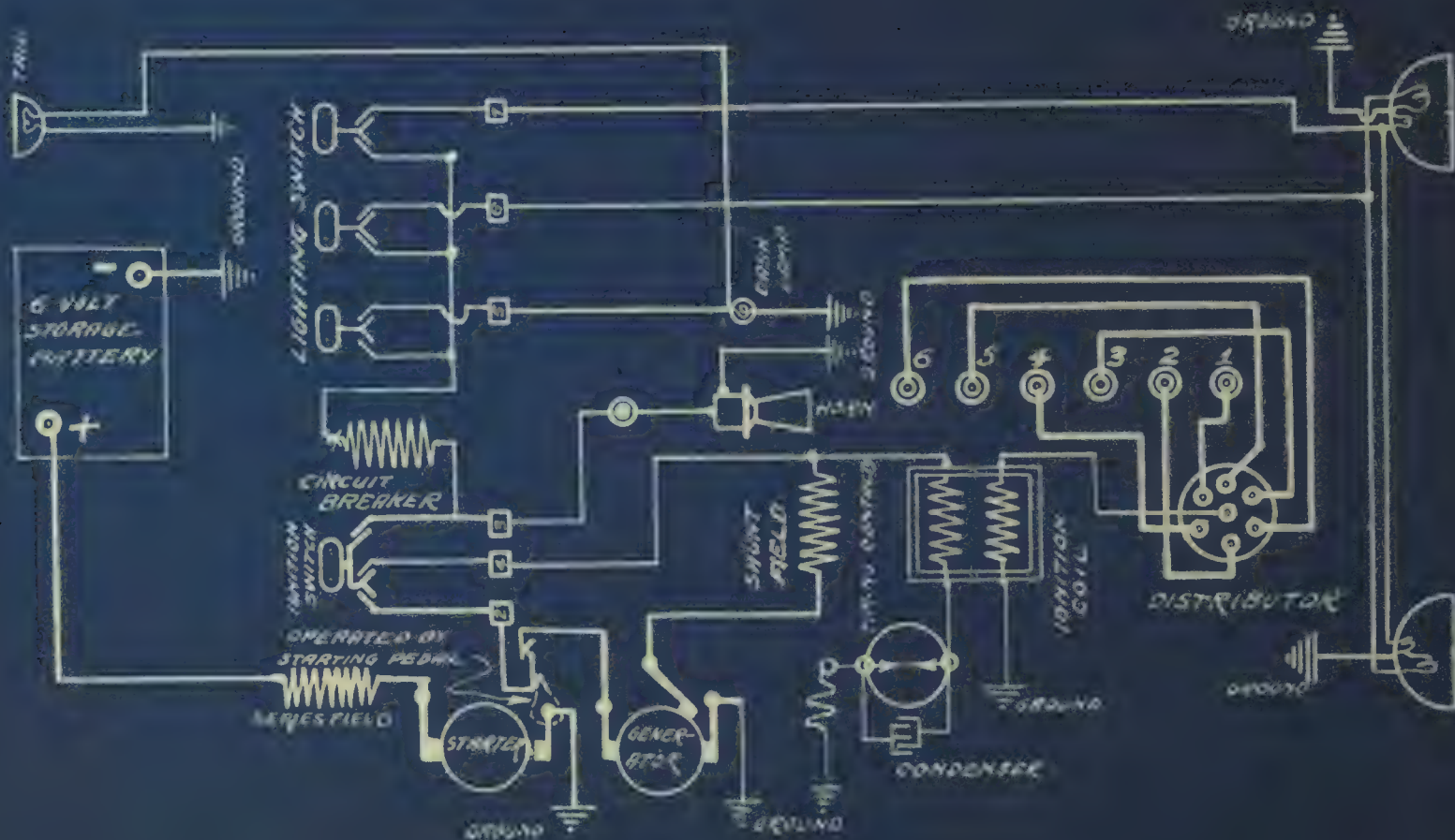
FROM DELCO MANUAL



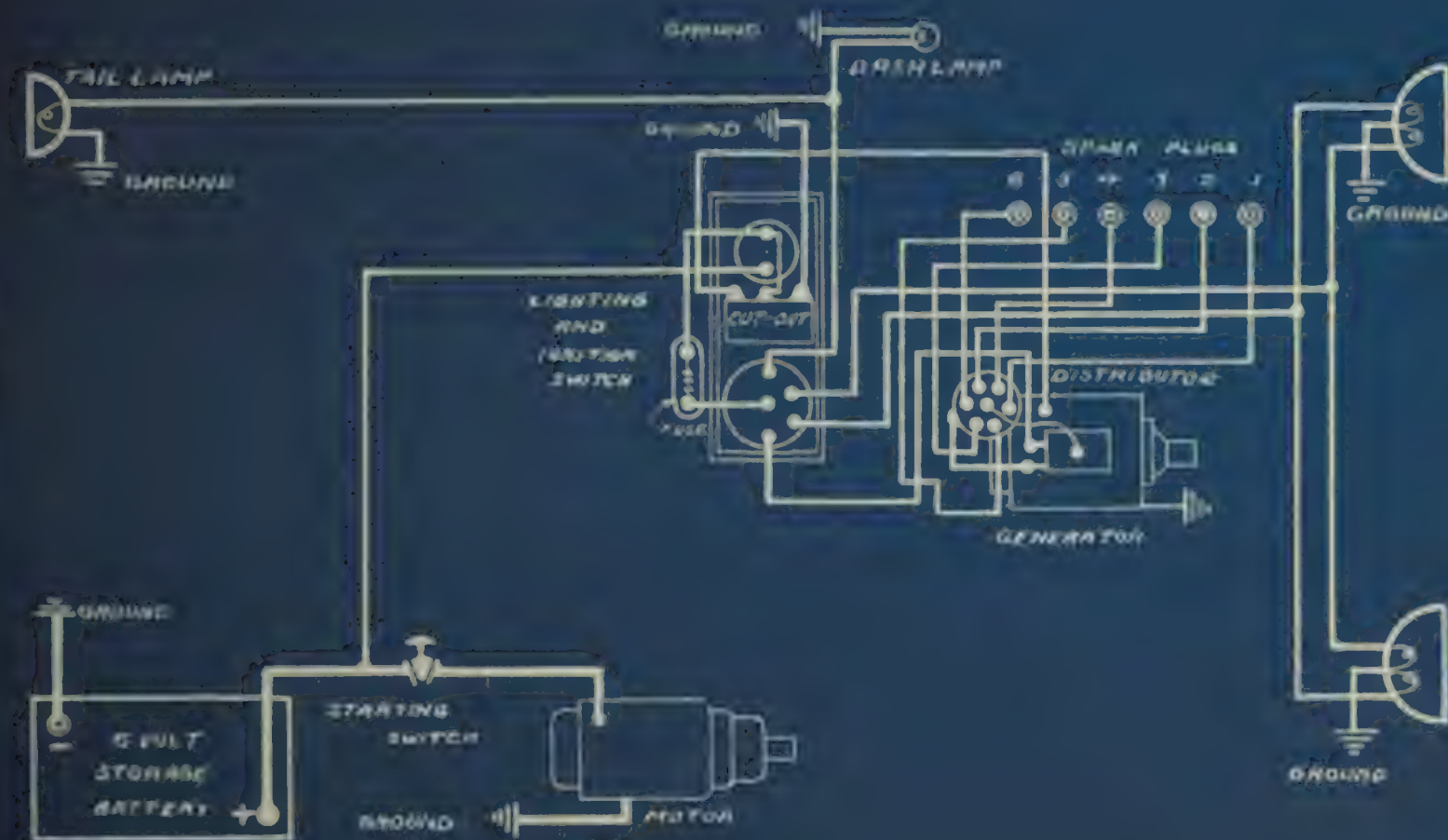
AUBURN 1918  
DELCO SYSTEM

6-44

FROM MFRS. BT



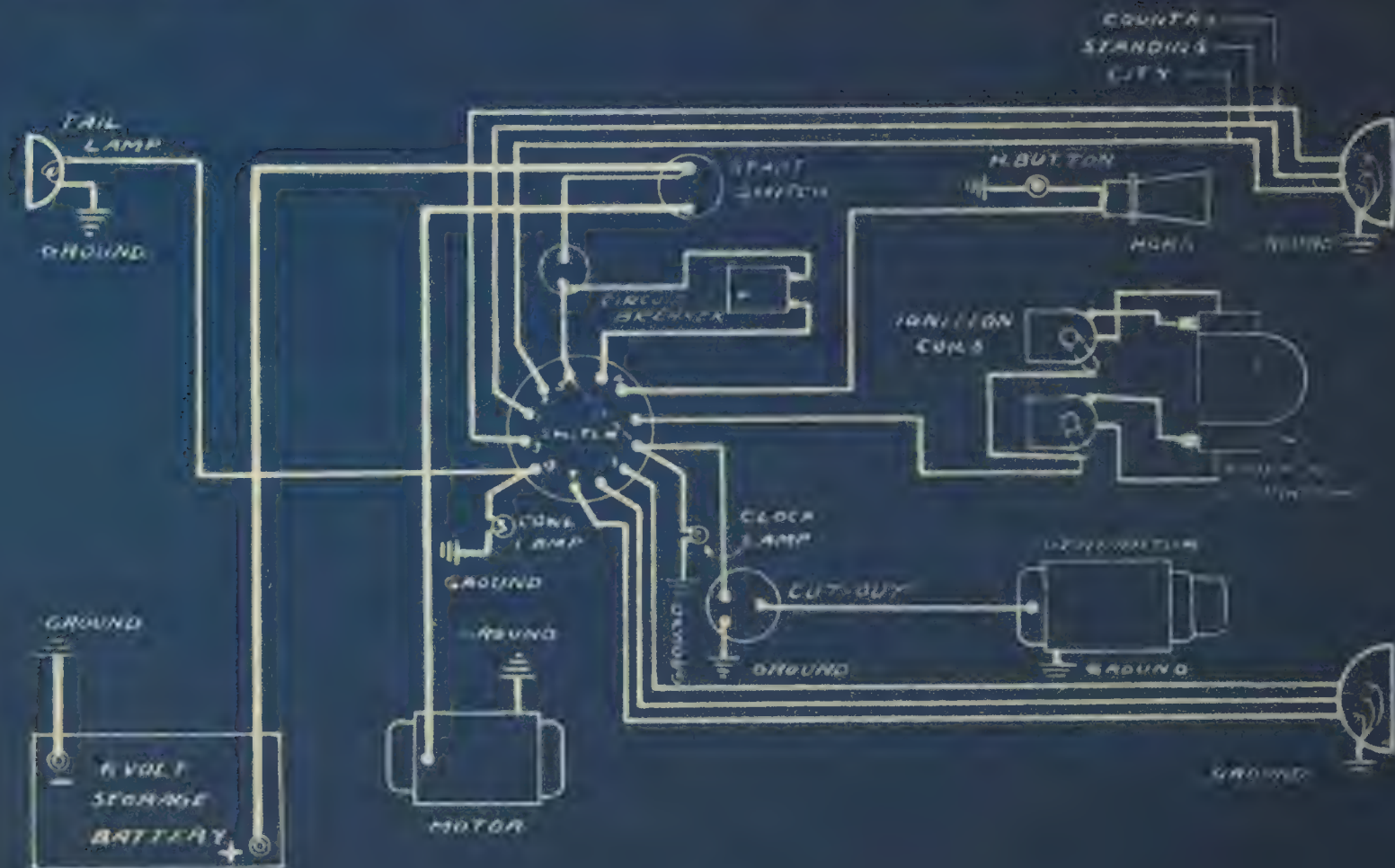




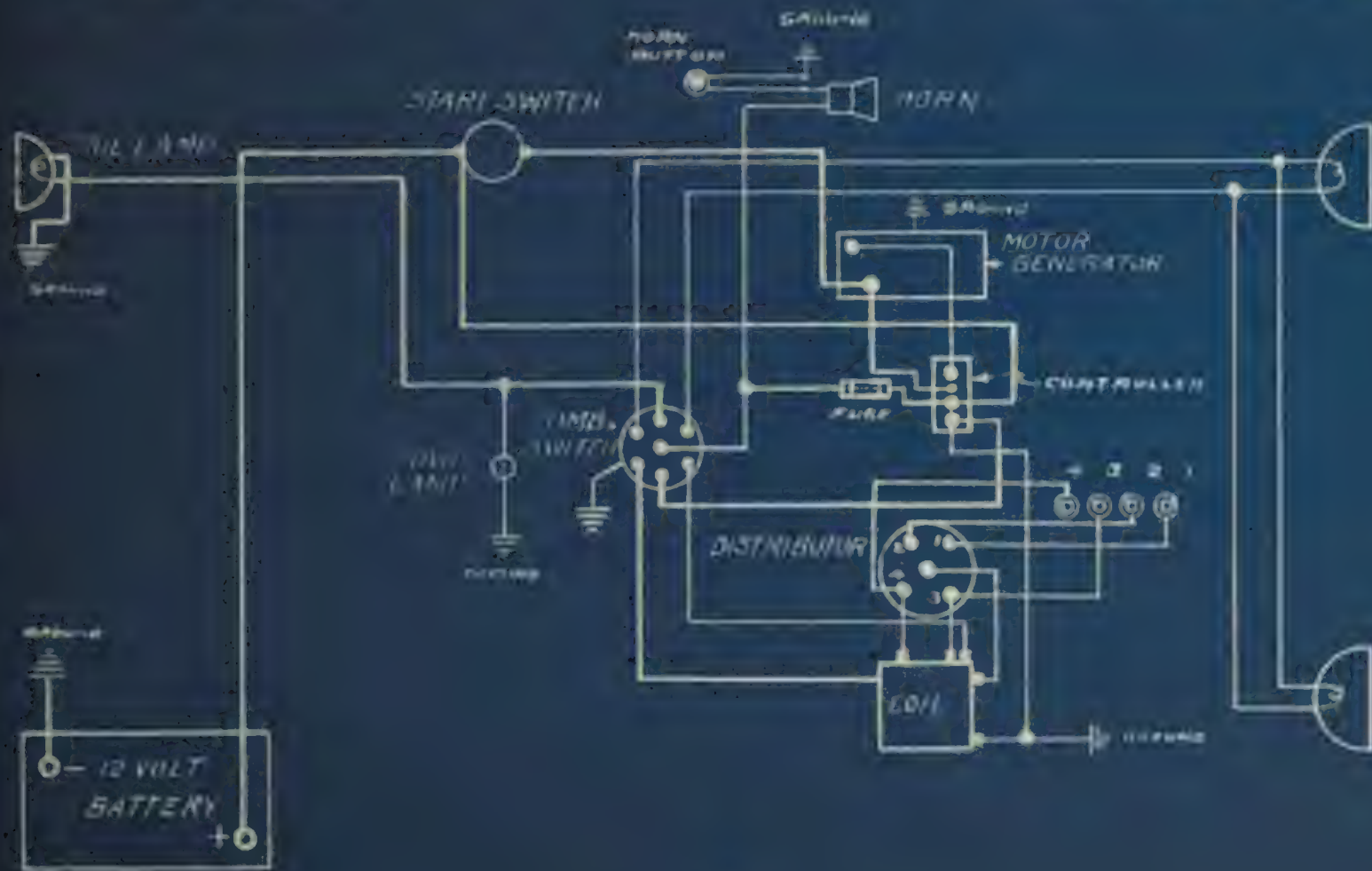
# AUSTIN HIGHWAY KING 12 1917-1918

DELCO SYSTEM

FROM AMPA B-C

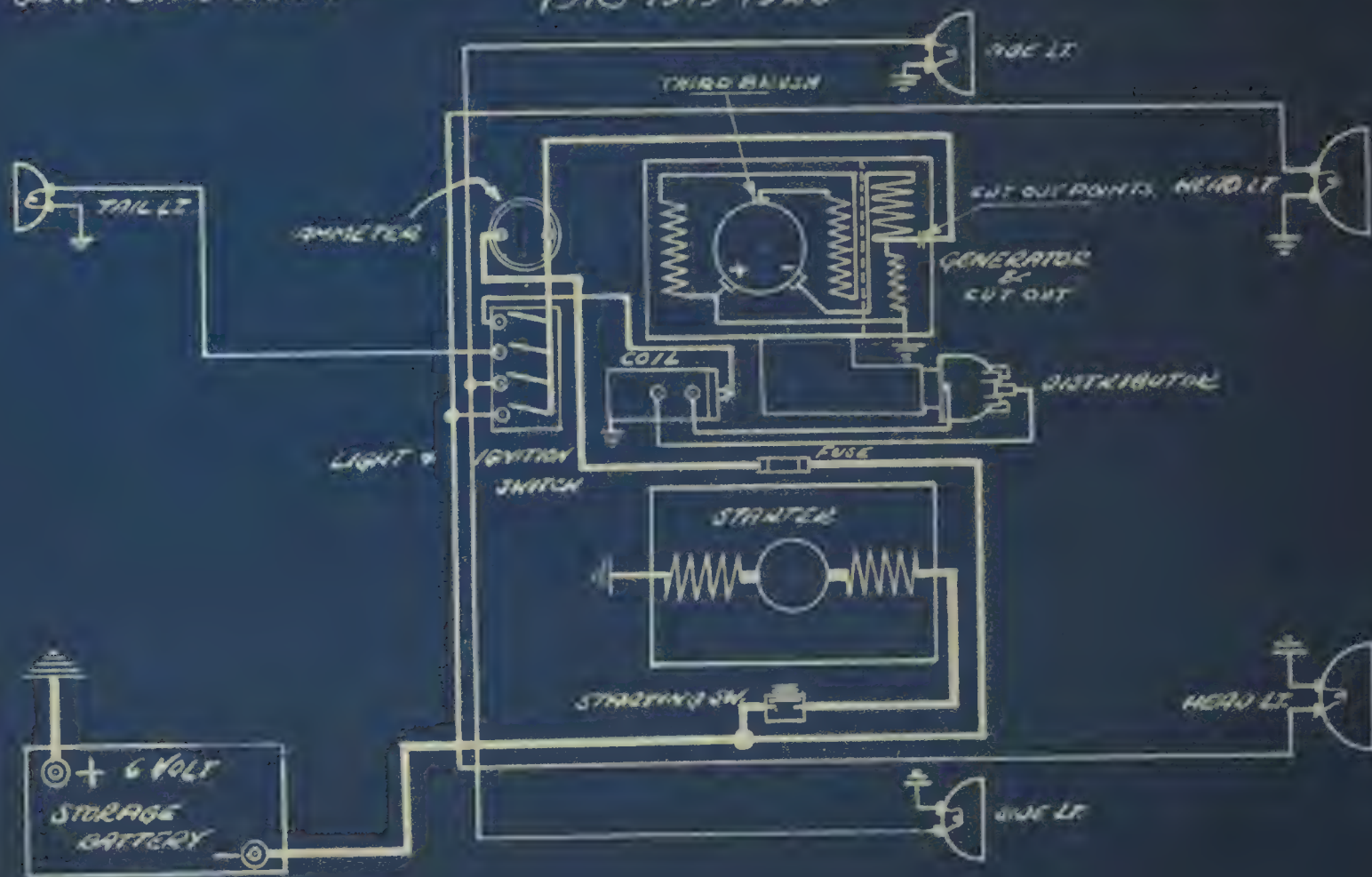






BETHLEHEM TRUCKS—MODELS DX-EX-FX  
GRAY & DAVIS SYSTEM  
1918-1919-1920-

MEGS BLUEPRINT SD-141



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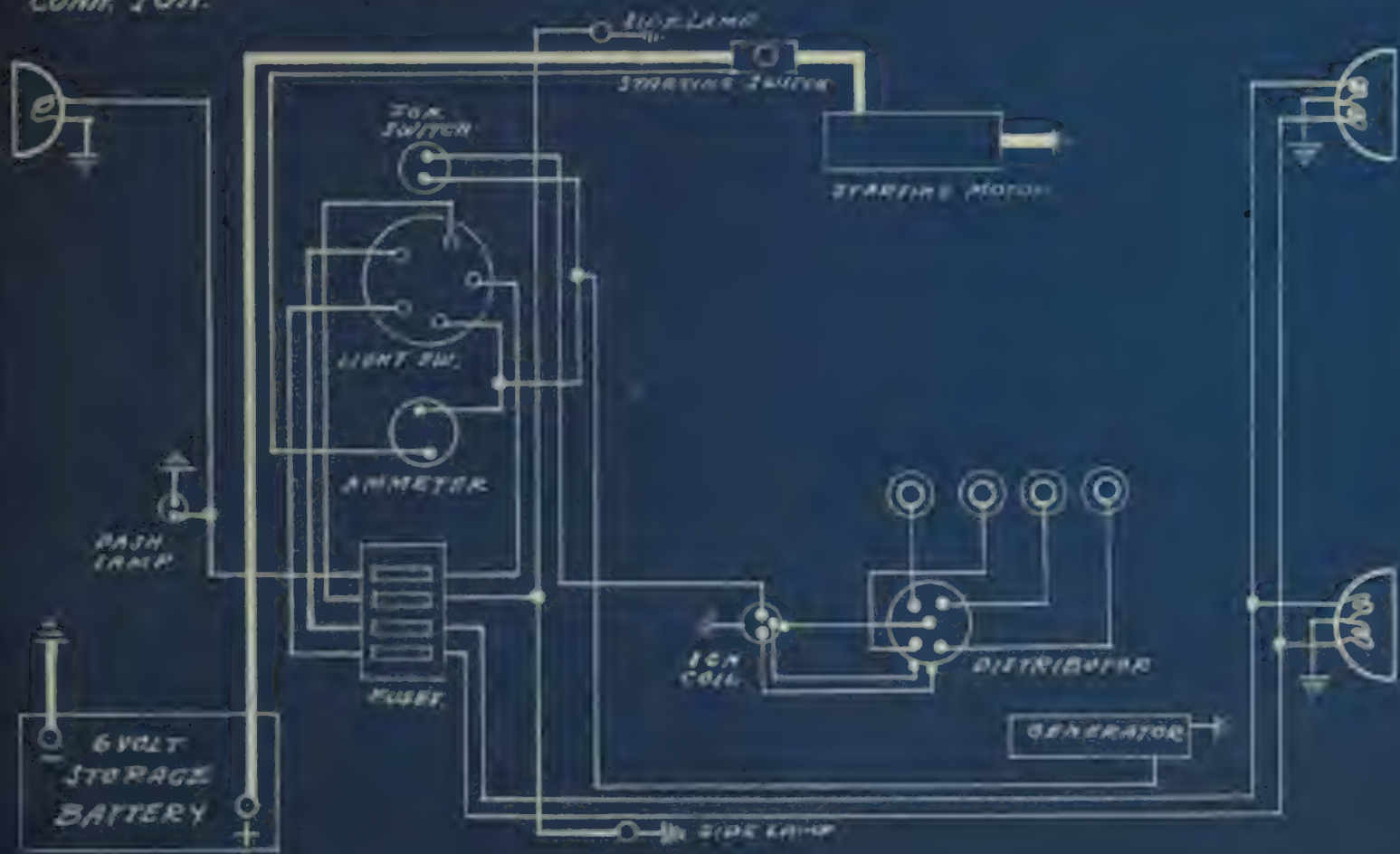


# BIDDLE ALL MODELS 1919-1920

## GRAY & DAVIS STARTING & LIGHTING

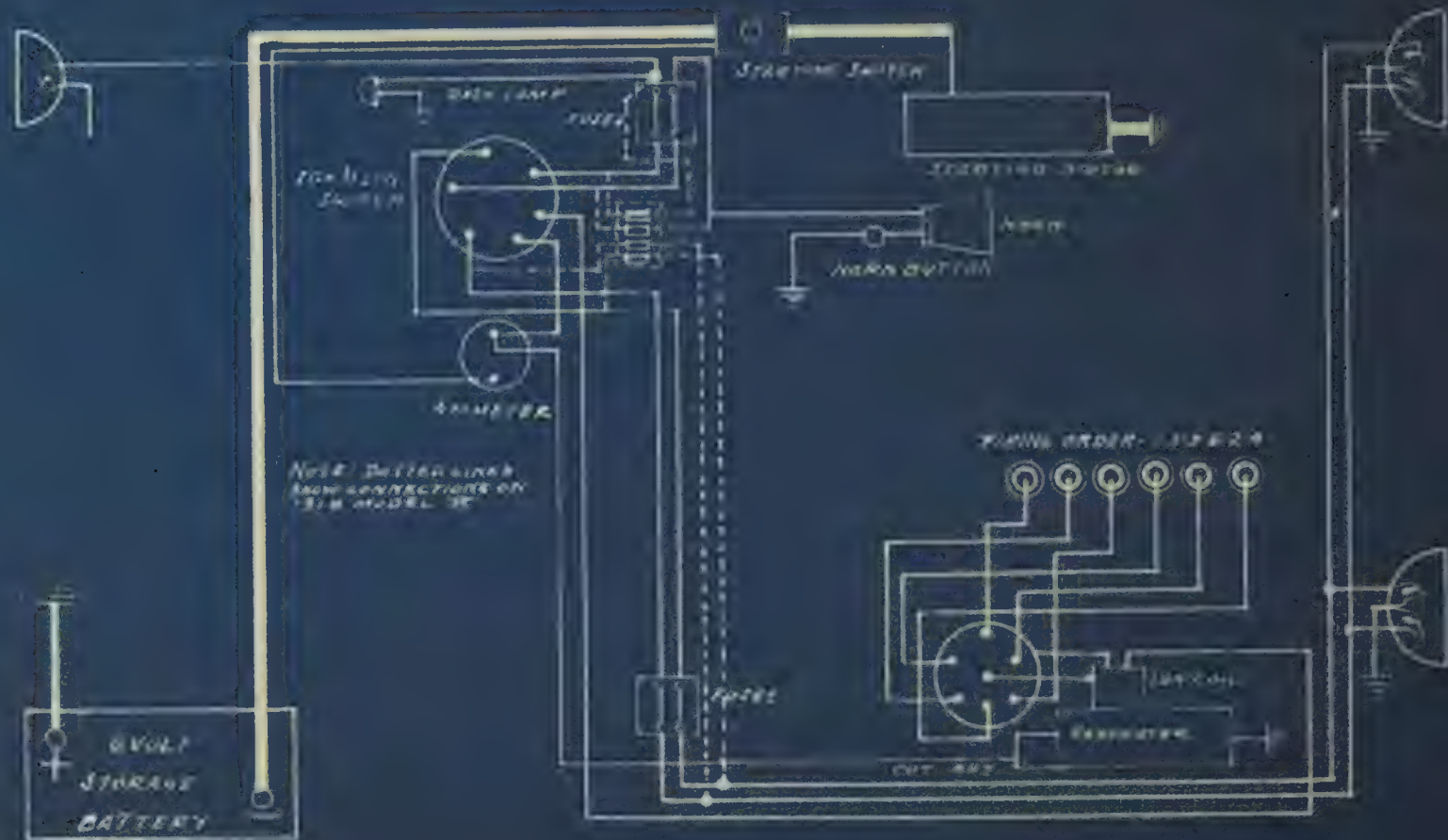
### CONN. I.G.N.

(W-20) FUSELESS SWITCH



BOUR-DAVIS ALL MODELS 1919 1920  
REMYSYSTEM

FROM MERCEDES BOM  
1918 B10



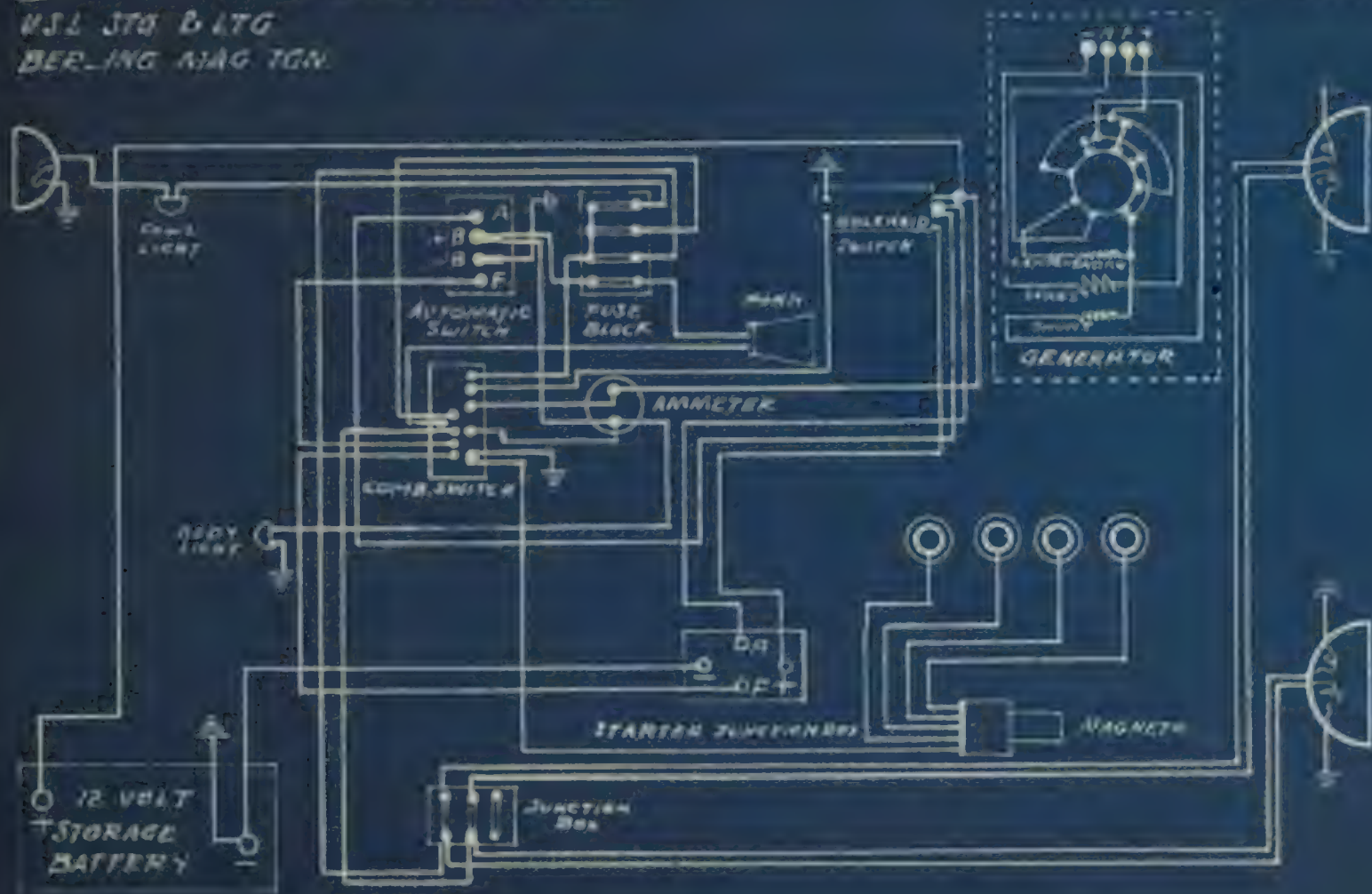


# BREWSTER MODEL 91 1920

U.S. JTG B L TG

BERLING MAG TON

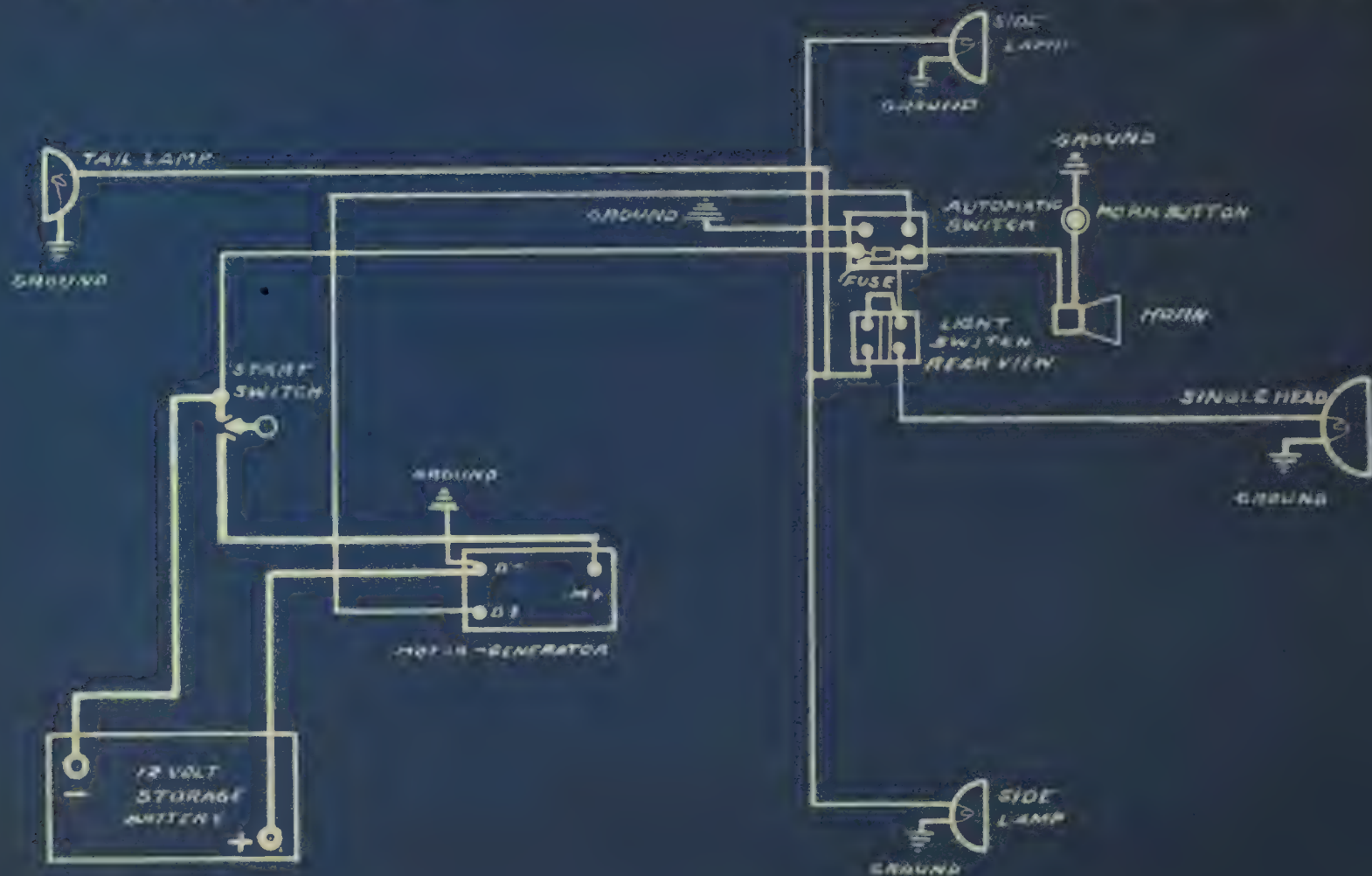
Wiring Diagram No. 9131-10



# BRISCOE "B15" 1915

SPLIT-DRIVE-AUTOLGO SYSTEM

FROM BRISCOE B.P.

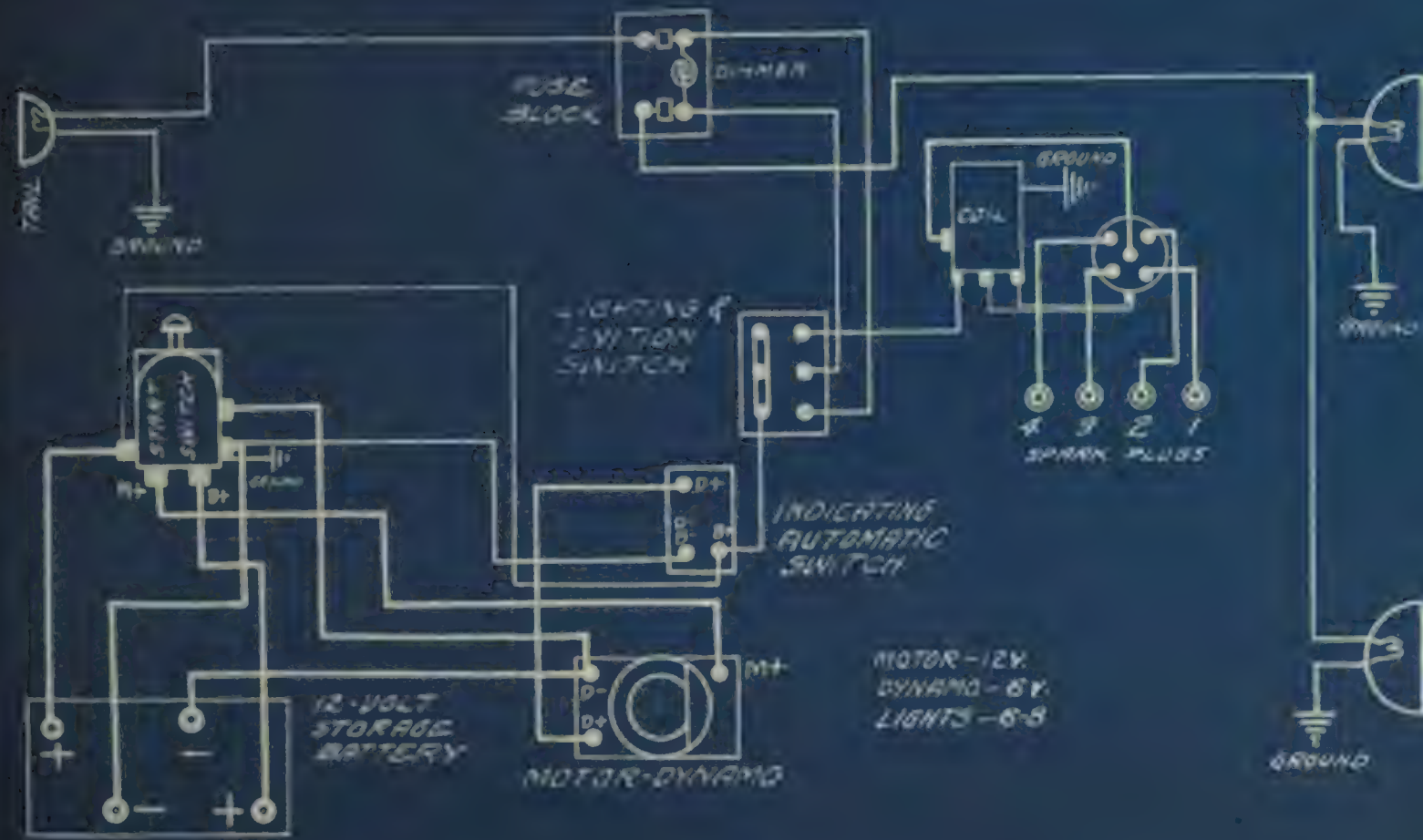


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**BRISCOE 1916 4-38**  
**SPLITDORF-APELCO SYSTEM**

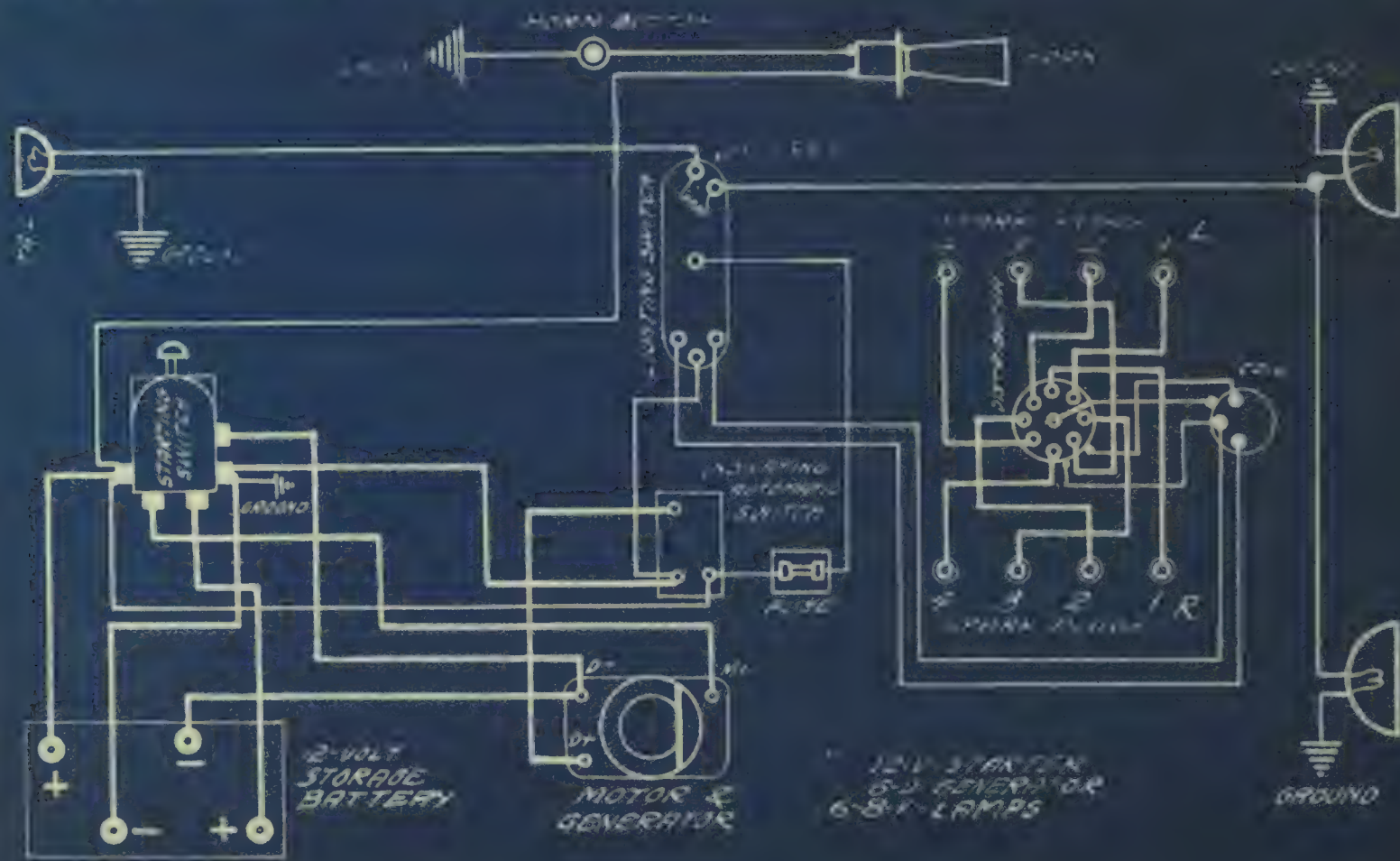
PROM-SPLITER MANUAL



# BRISCOE 1916 B-38

## SPLIT-DIODE-APELCO SYSTEM

FROM BRISCOE MANUAL



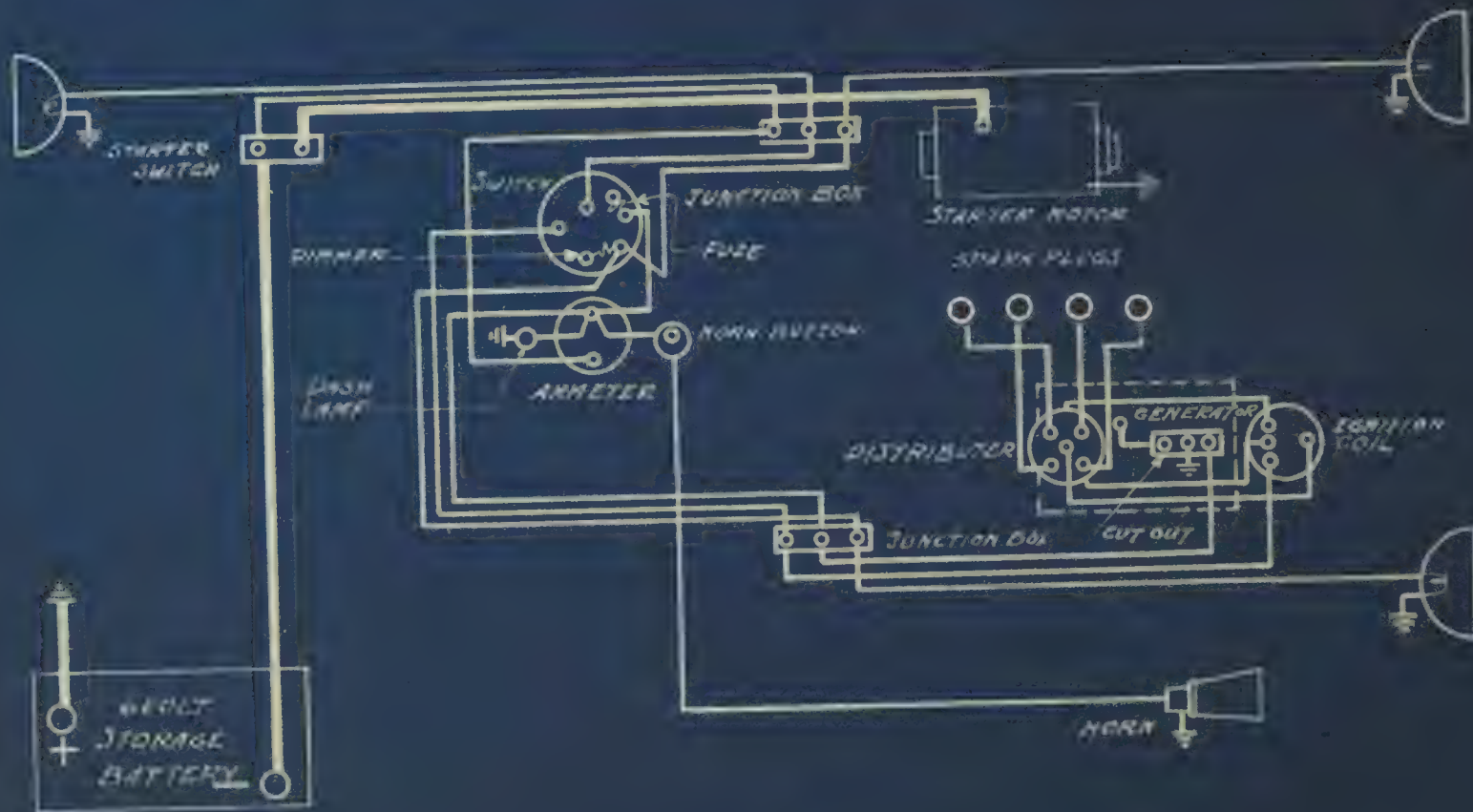




# BRISCOE 1920 MODEL 4-34

AUTO LITE SYSTEM CONN. ION.

FROM MICHIGAN 1920



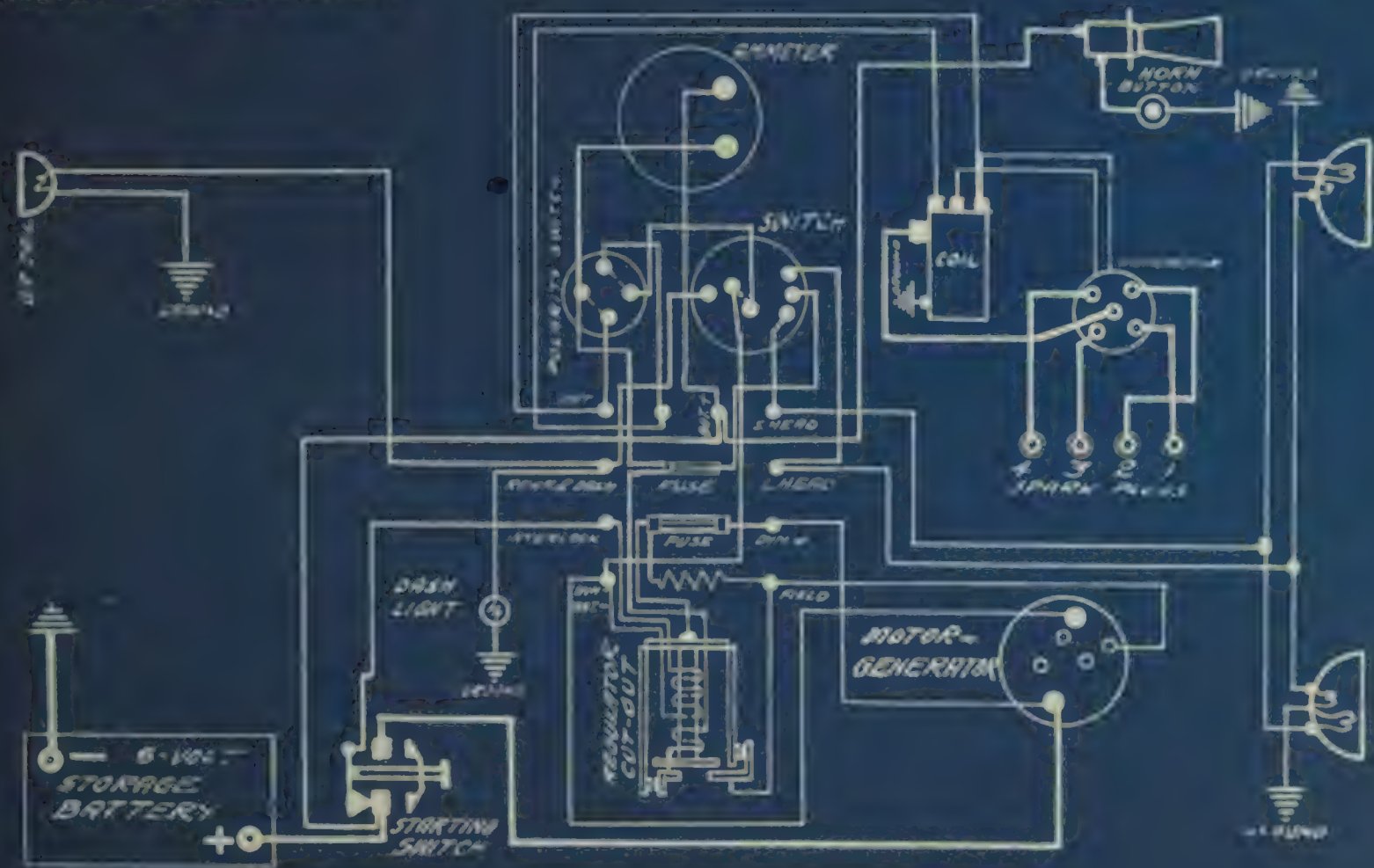
AUTOMOTIVE PUBLISHING CO.  
PUBLISHED BY S. S. & S.



# BROWN 1916

ALLIS-CHALMERS SYSTEM

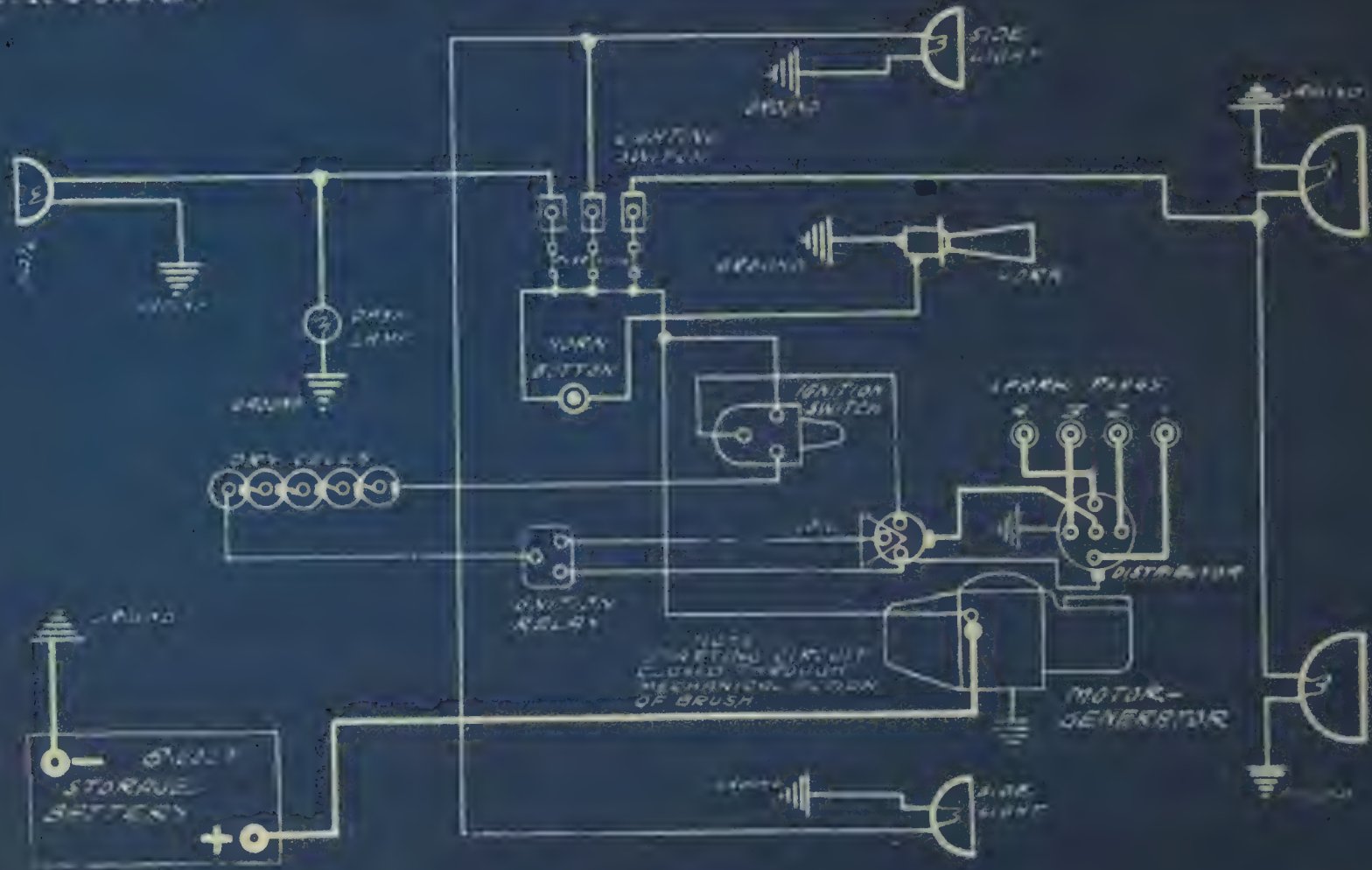
FROM R/CBP 3410687



# BUICK 1914 B-24 & B-25

## WIRE SYSTEM

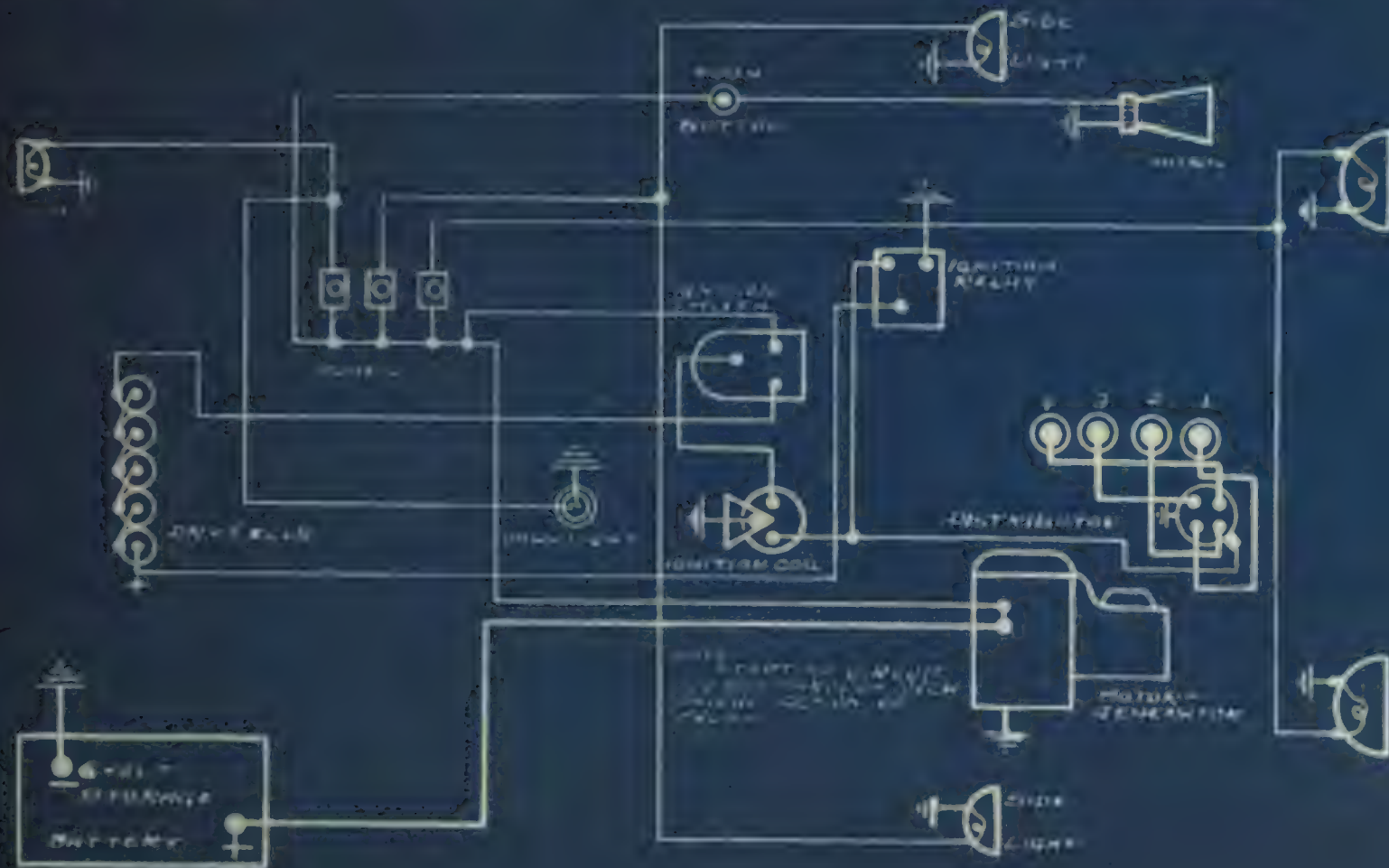
FROM DELCO SYSTEM





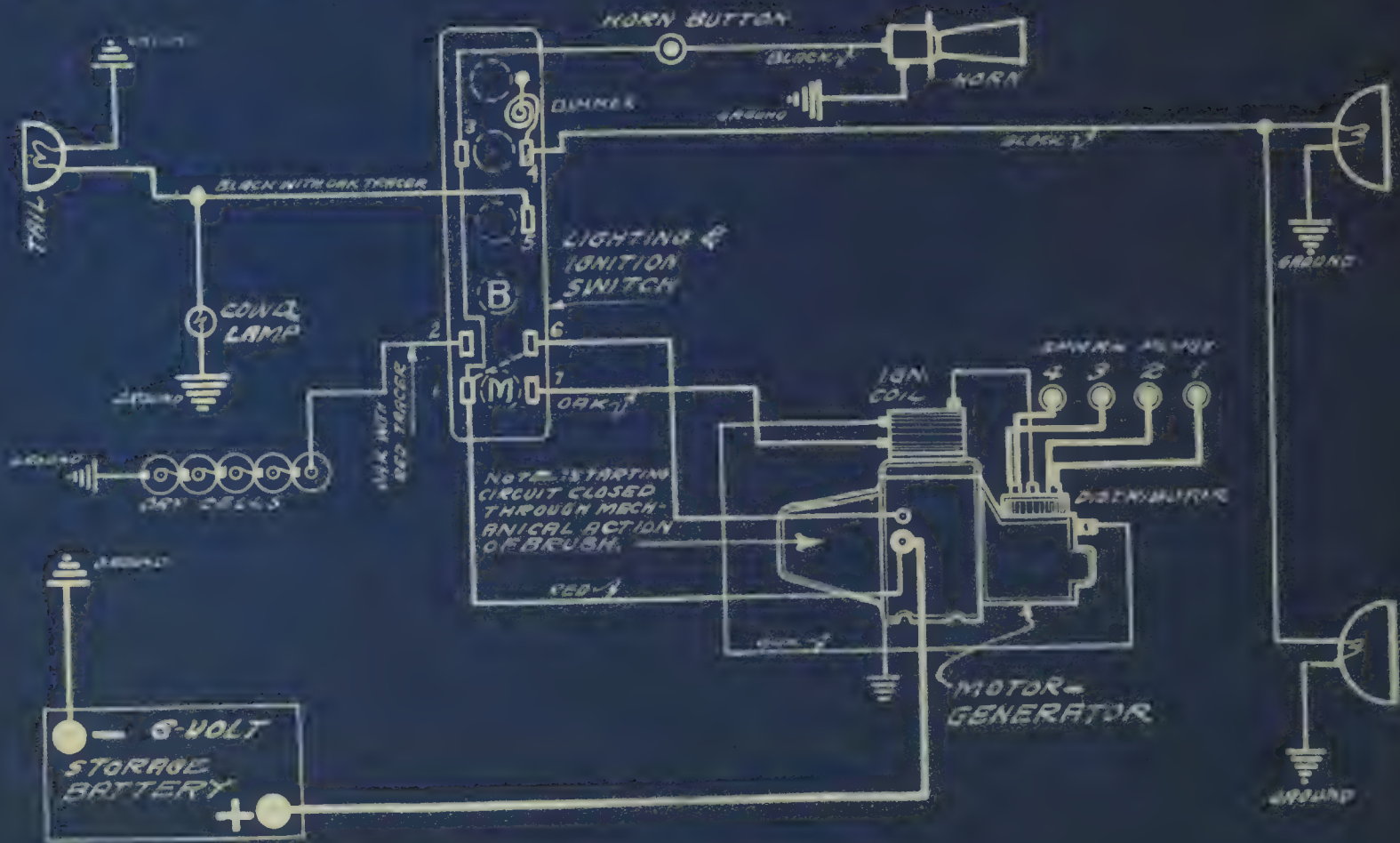
# BUICK 1914 B-36-37 DELCO SYSTEM

FROM DELCO-MONMONT



**BUICK 1915  
DELCO SYSTEM**

FROM BUNCH 1/57, BAC

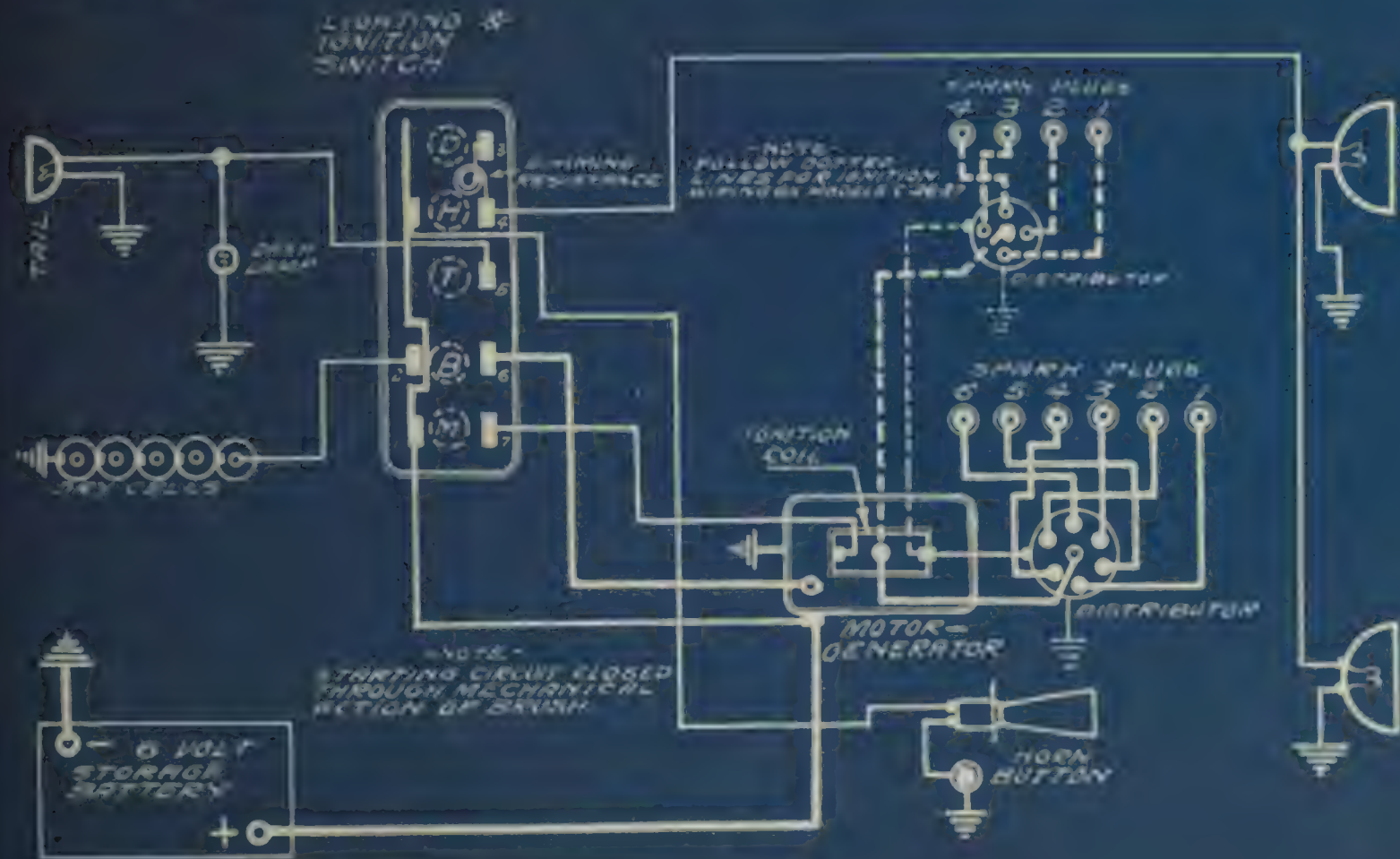


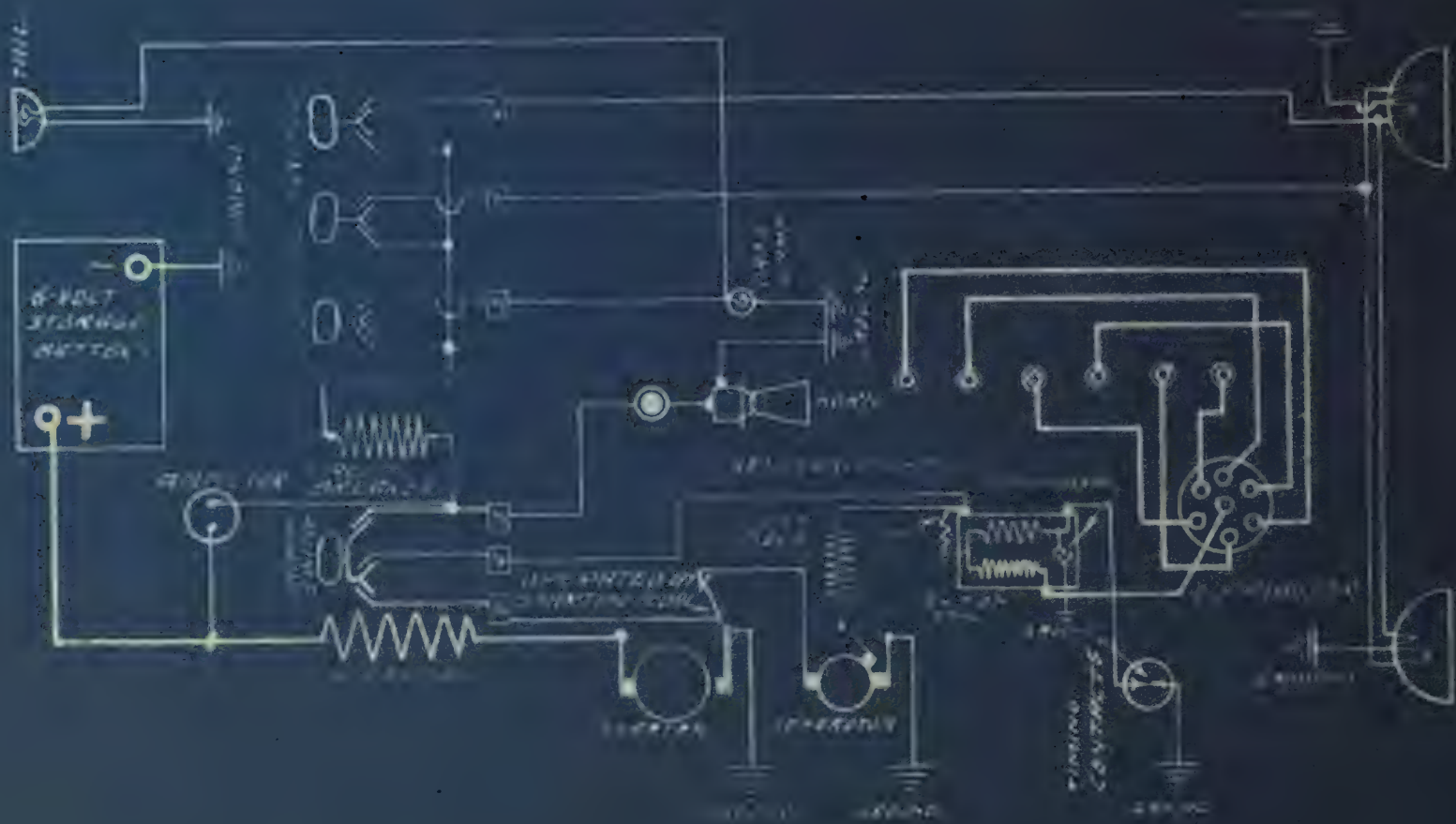


# BUICK 1915 "C" 36-37-54-55

DELCO SYSTEM

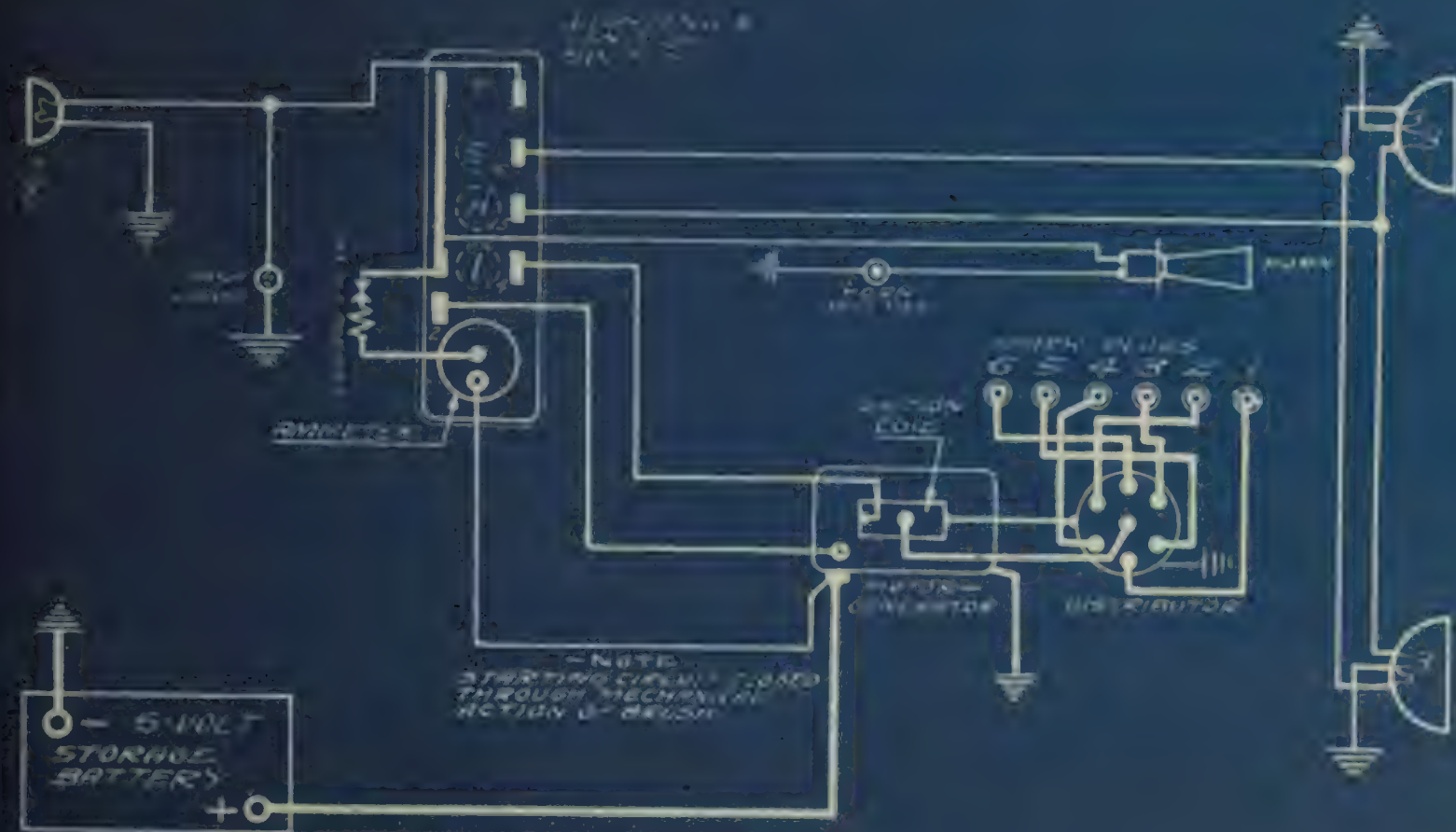
FROM DELCO MANUAL





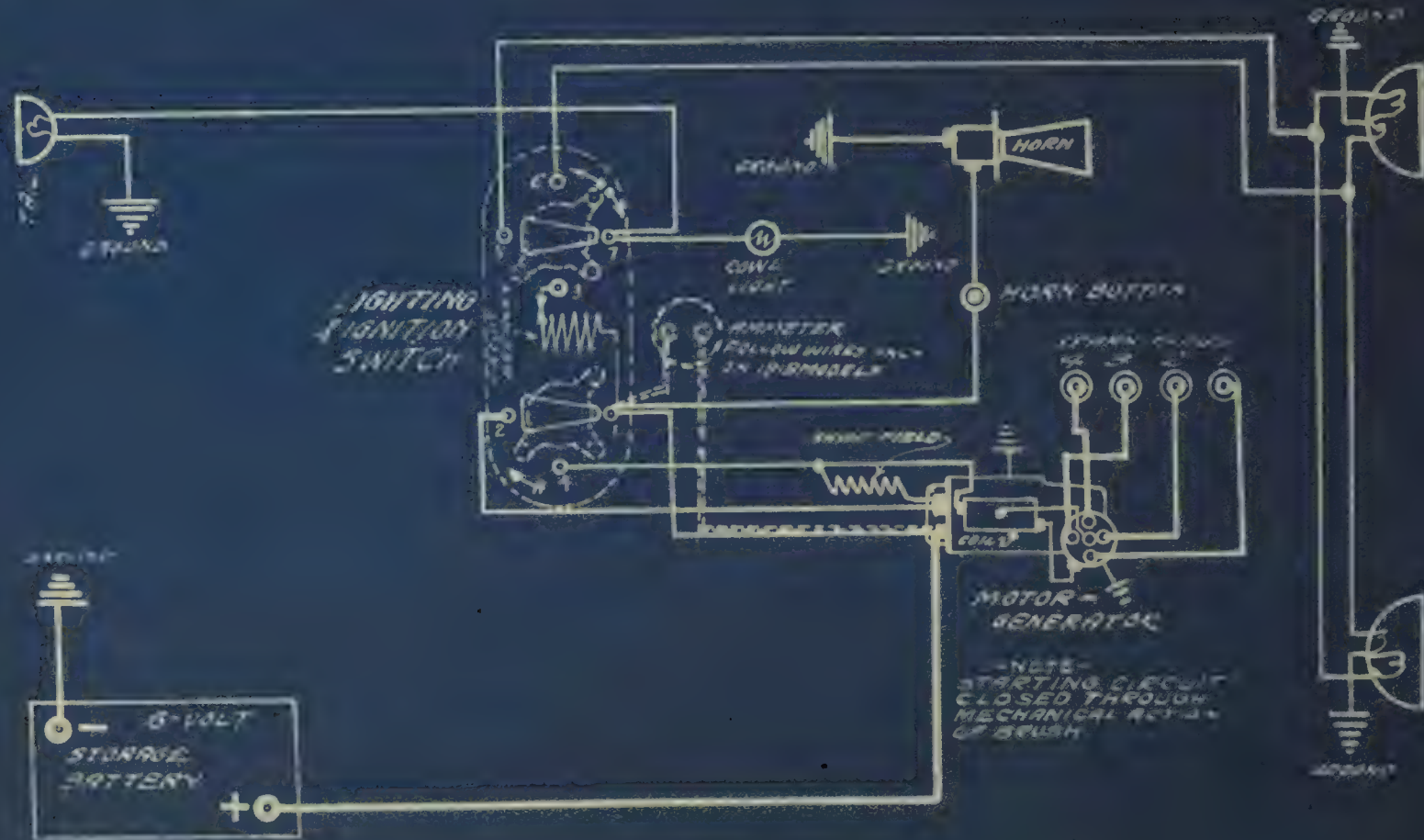


**BUICK 1916 D-44-45-54-55 1917 D-6-44-45-46-47**  
**DELCO SYSTEM** FROM DELCO HANDS



# BUICK 1917, D-34-D-35=1918, E-34-E-35 DELCO SYSTEM

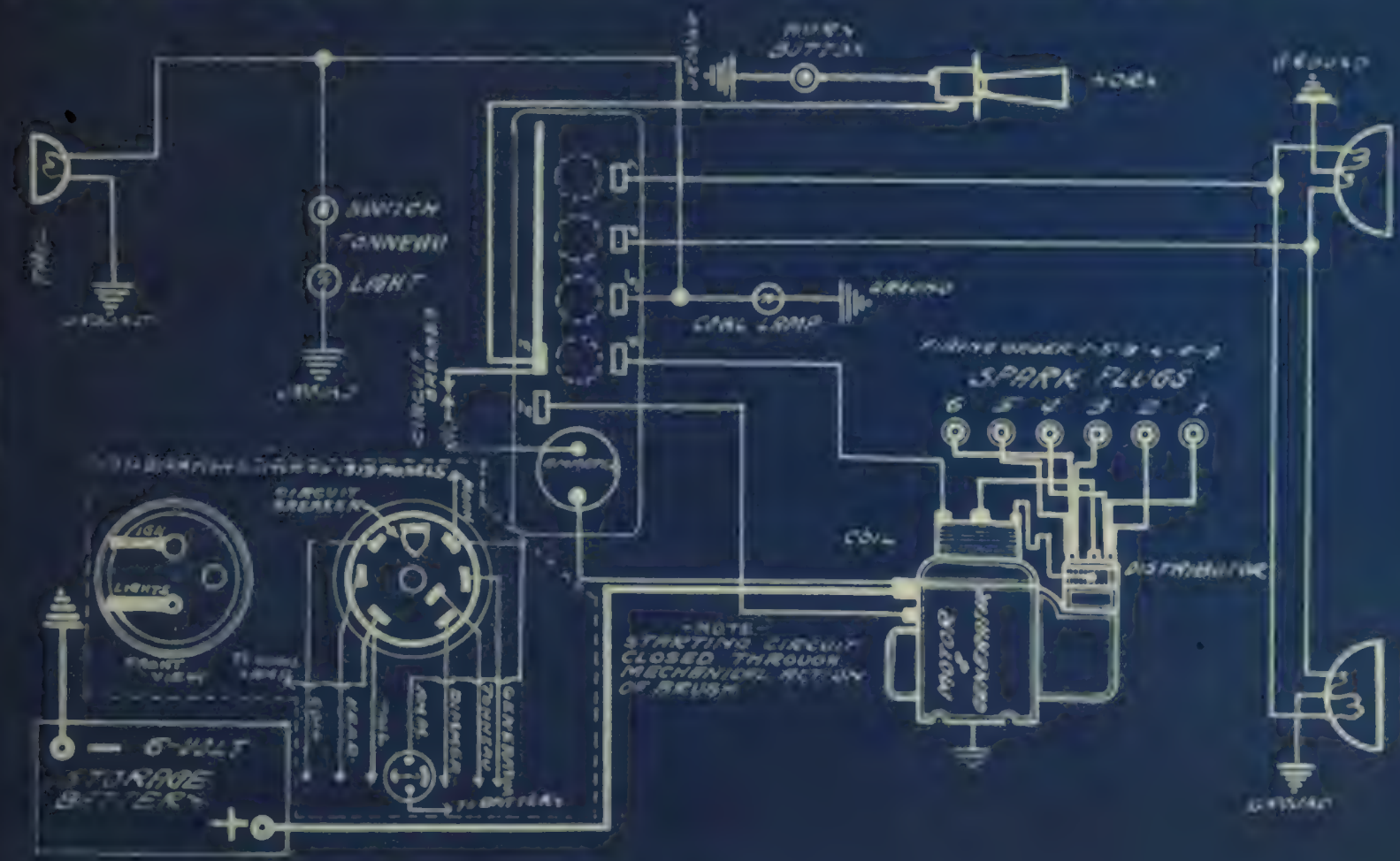
FROM BUICK INSTRUCTIONS



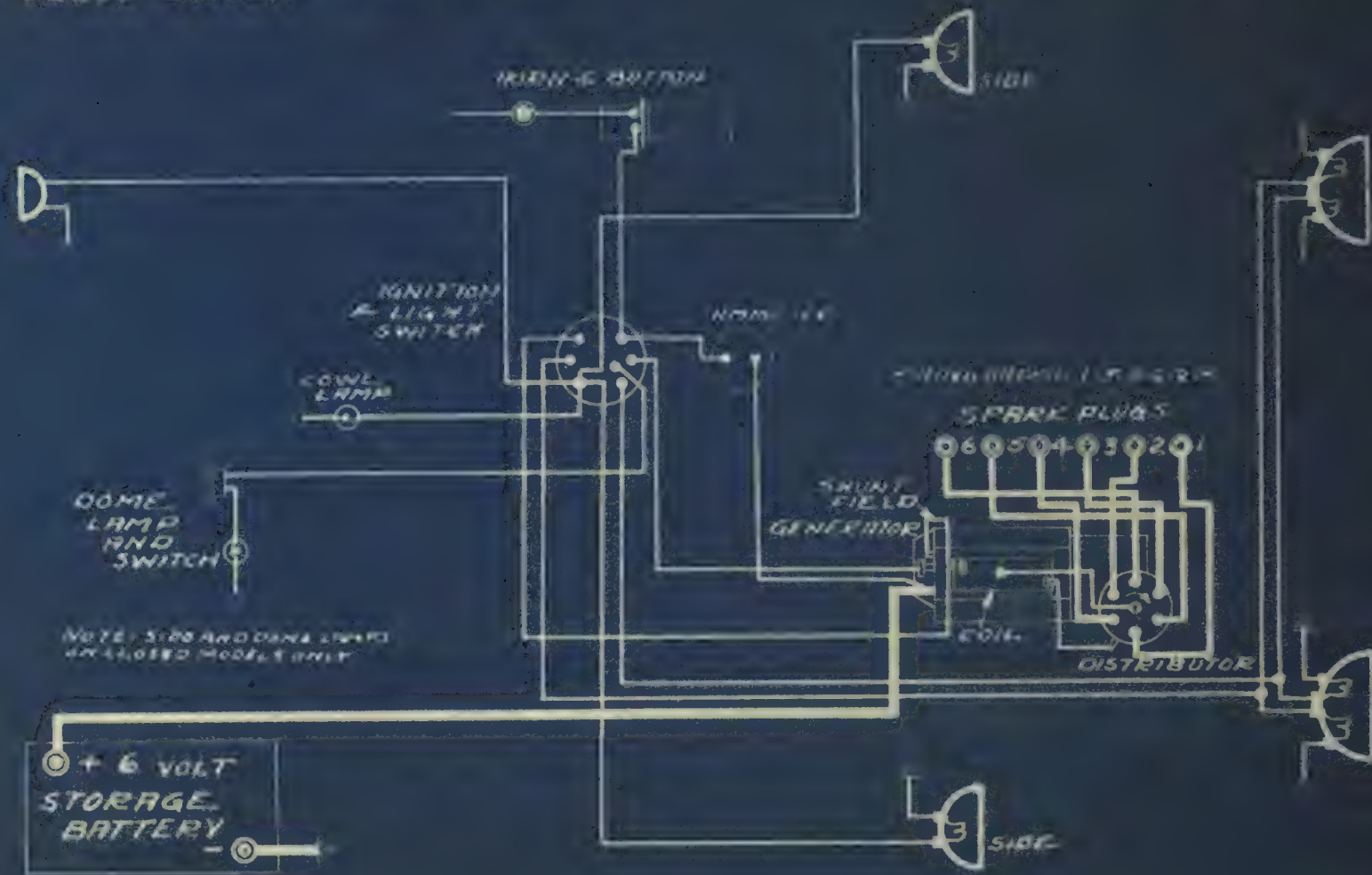


# BUICK 1918 E-SIX-44,45,46,47,49, & 50 - 1919 H SERIES DELCO SYSTEM

FROM 1918 44-50



2011-07-14 06:17





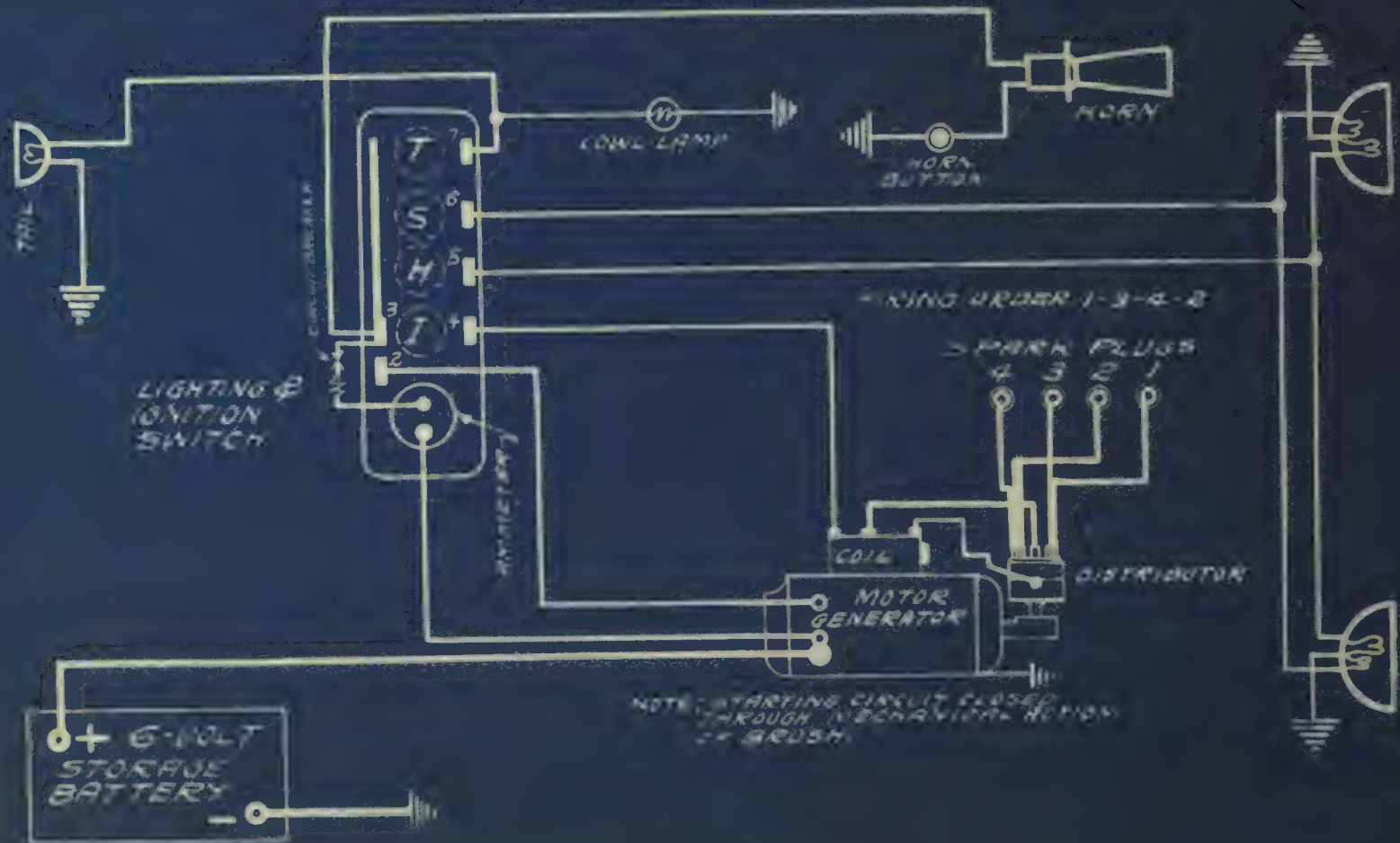
# BUICK TRUCK 1915 C-4 DELCO SYSTEM

GENCO DELCO SYSTEM



# BUICK TRUCK 1916 D-4 DELCO SYSTEM

FROM DELCO MANUAL

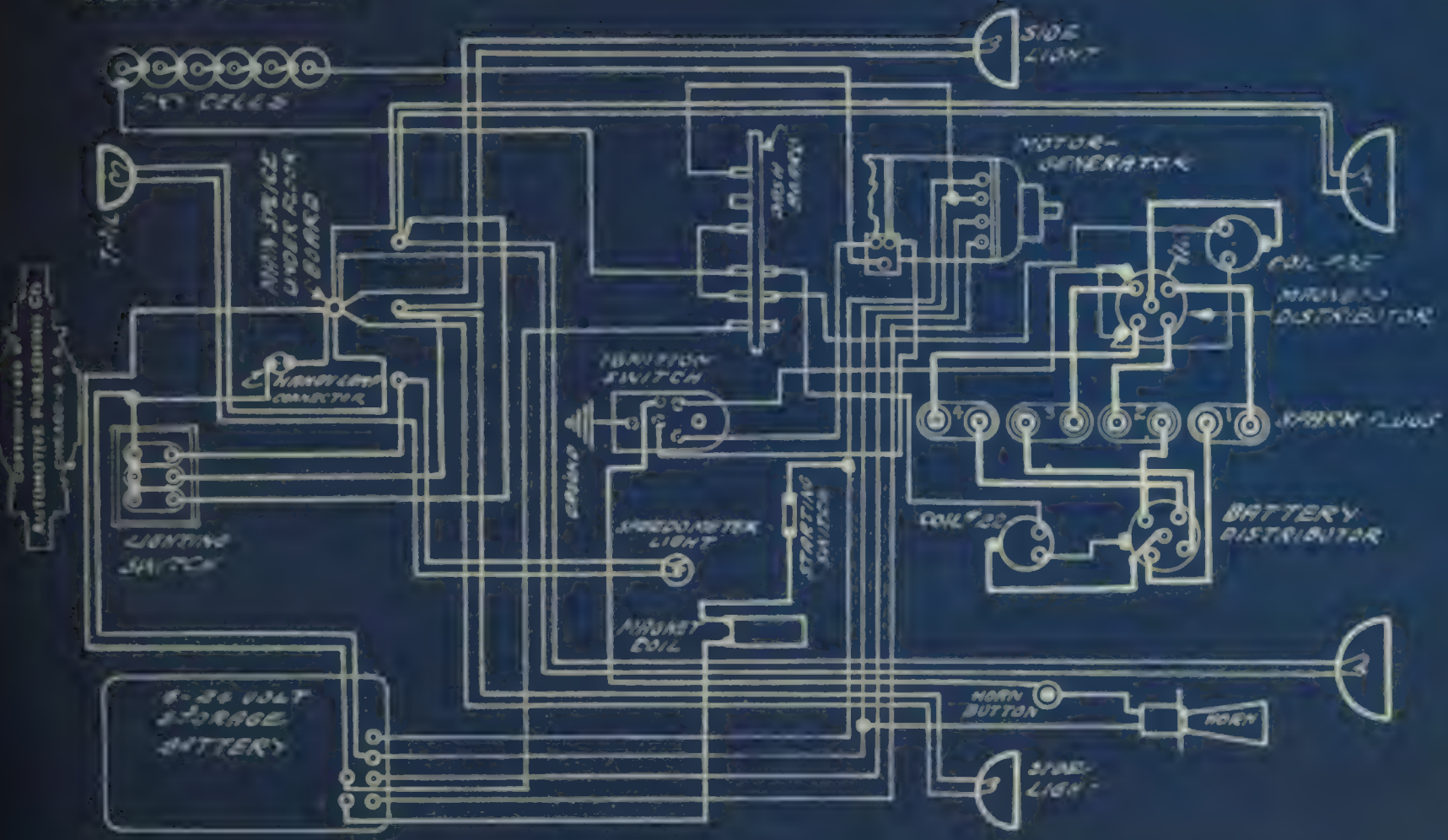




# CADILLAC 1912

## DELCO SYSTEM

FROM DELCO MANUAL



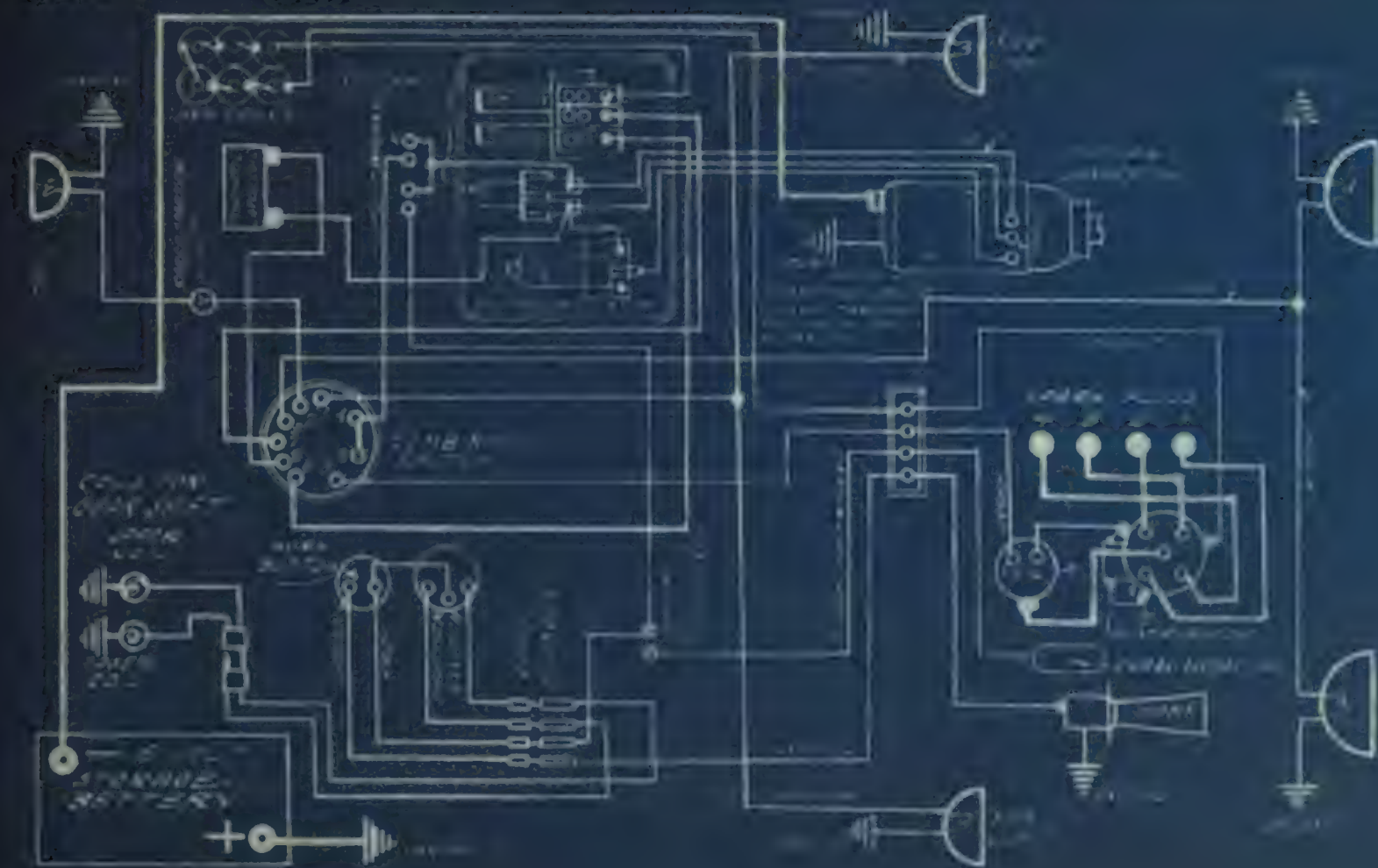
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# CADILLAC 1914 DELCO SYSTEM

200 AMP 200 VOLTS 1000 WATT



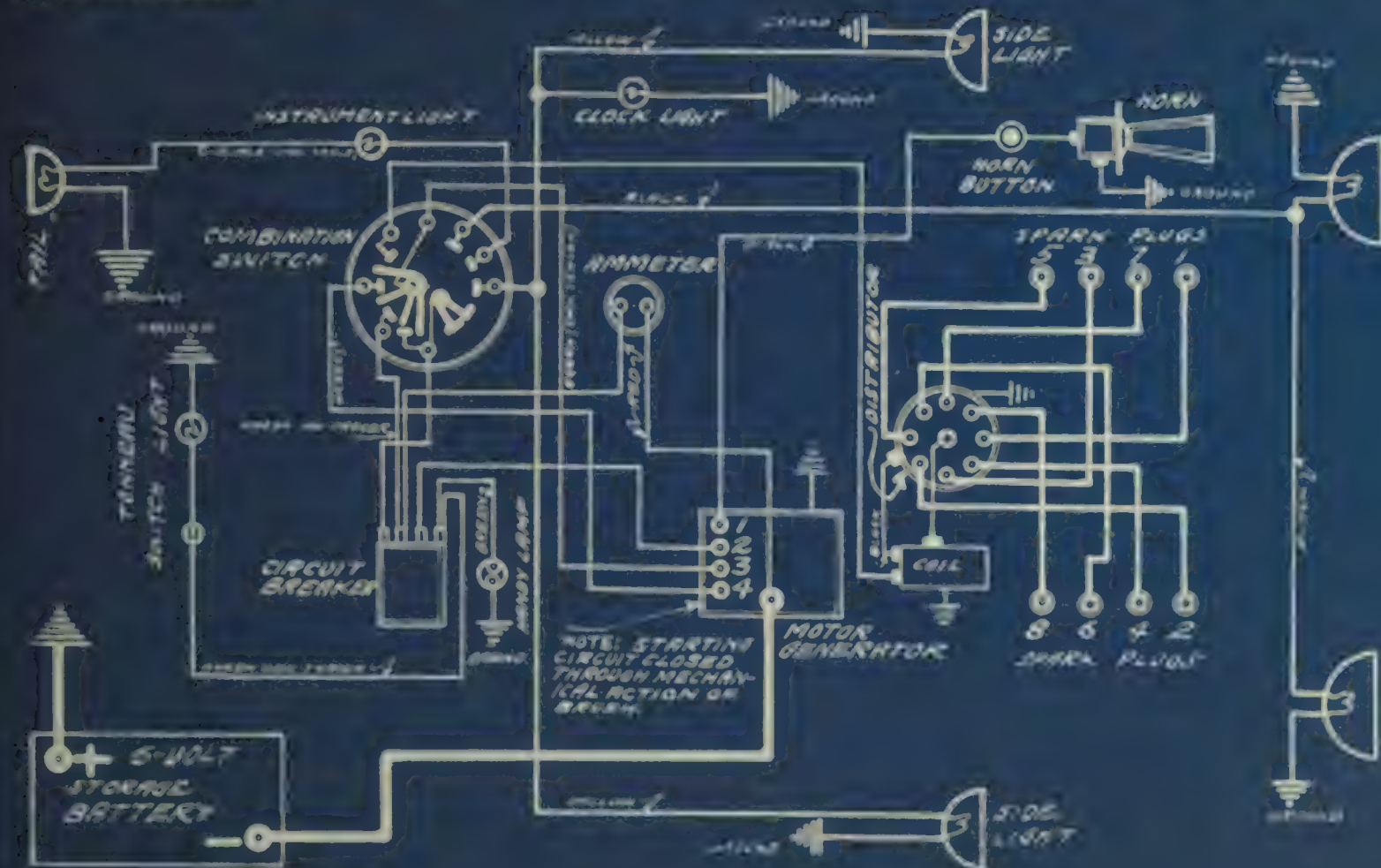




# CADILLAC 1916 "B" TYPE 53

## DELCO SYSTEM

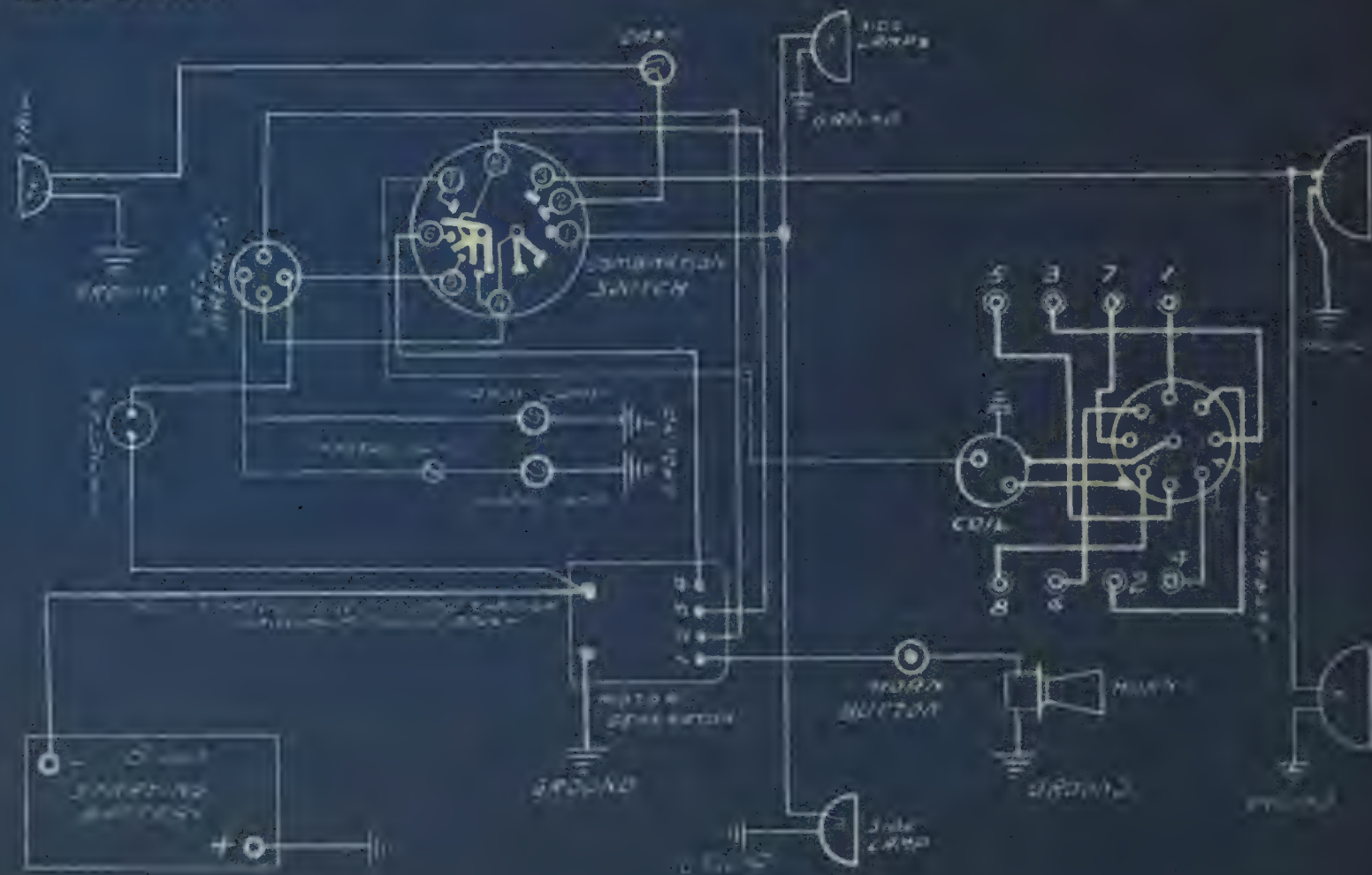
FROM INSTR. PLATE



# CADILLAC 1917 - "55" 1918-1919 57

DELCO SYSTEM

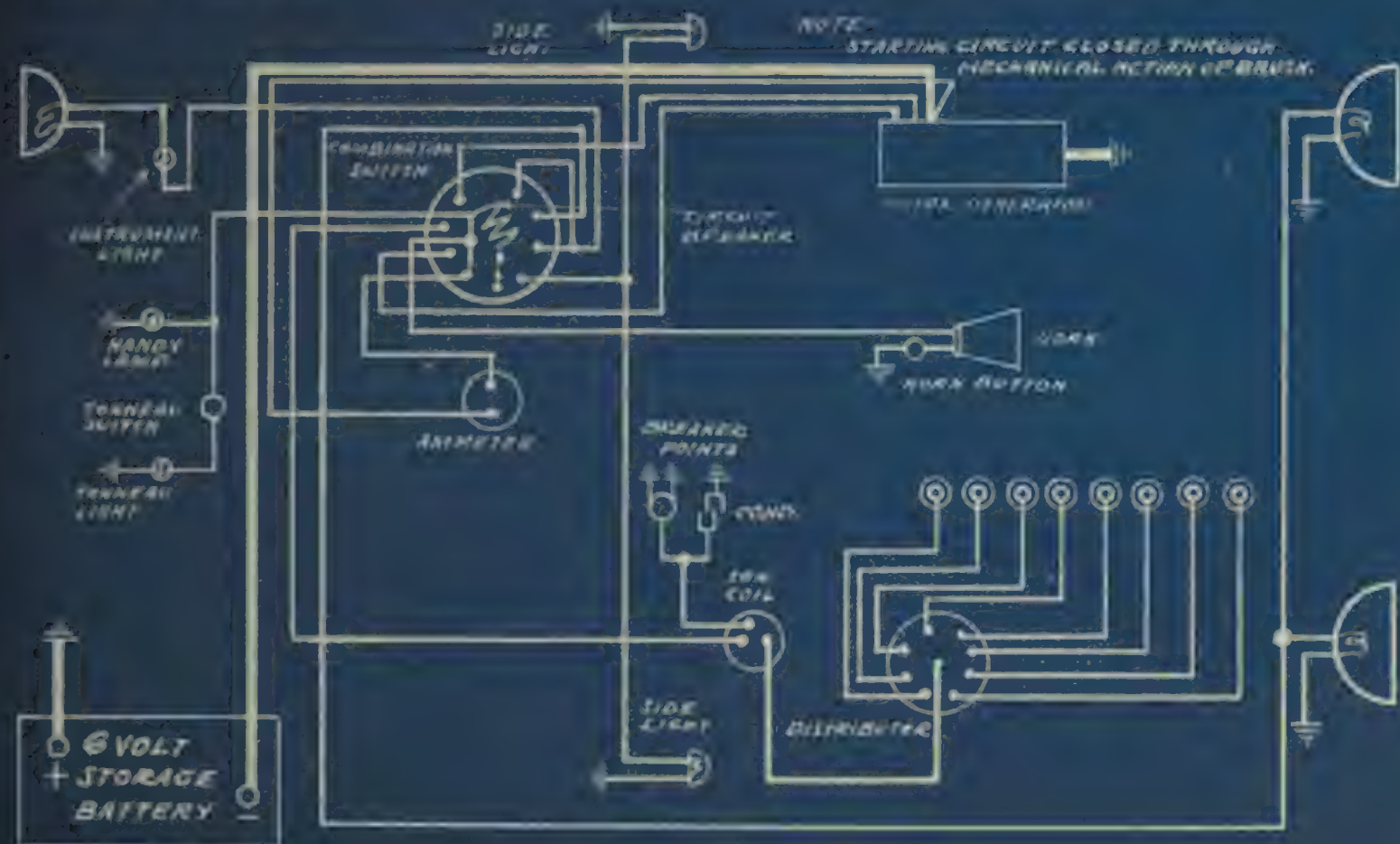
WIRE IN A B P 3817





# CADILLAC 39 1920 DELCO SYSTEM

FROM MPX 39-39654

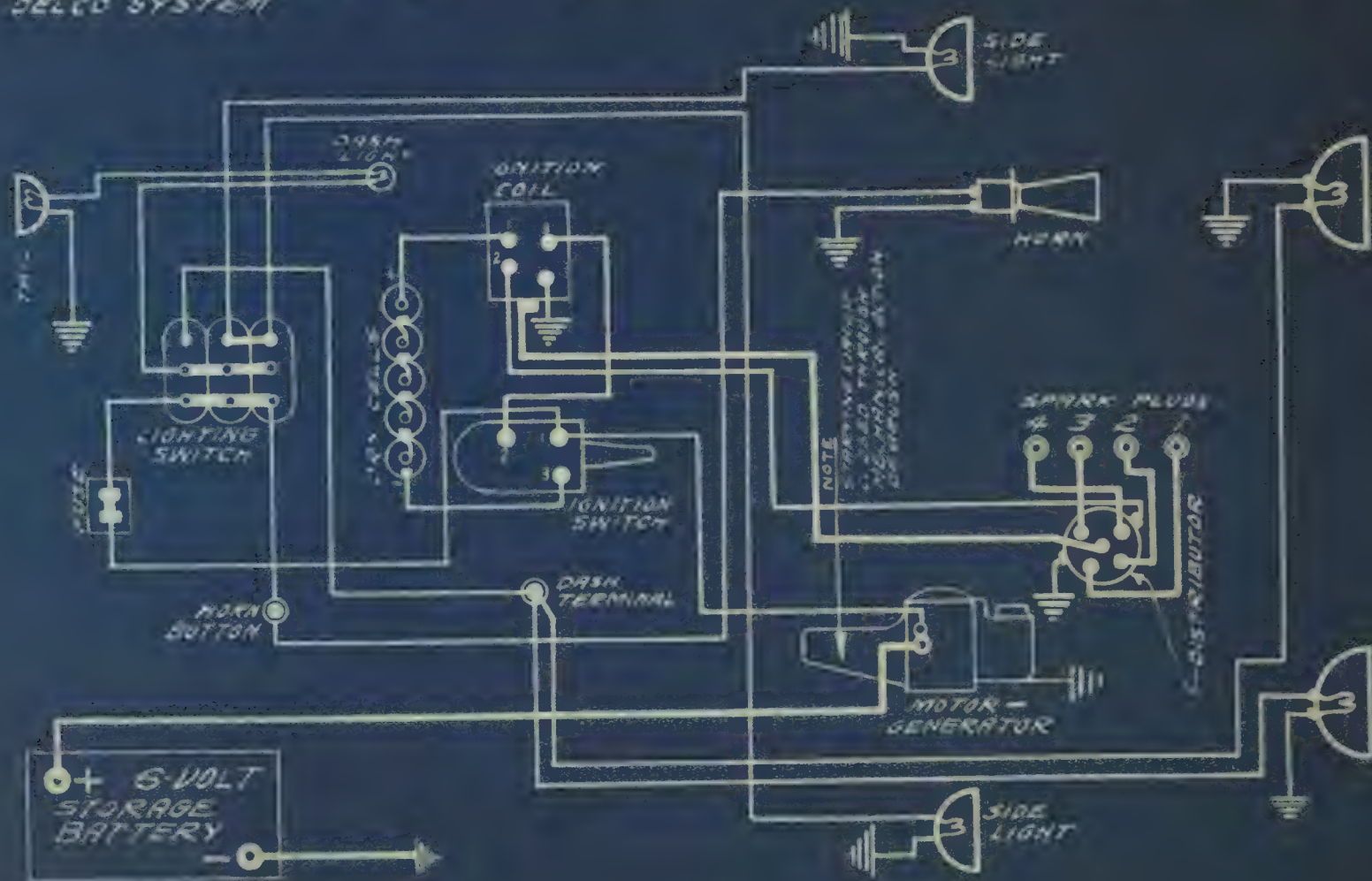


# CARTER CAR 1914

## DELCO SYSTEM

"7"

FROM DELCO MANUAL



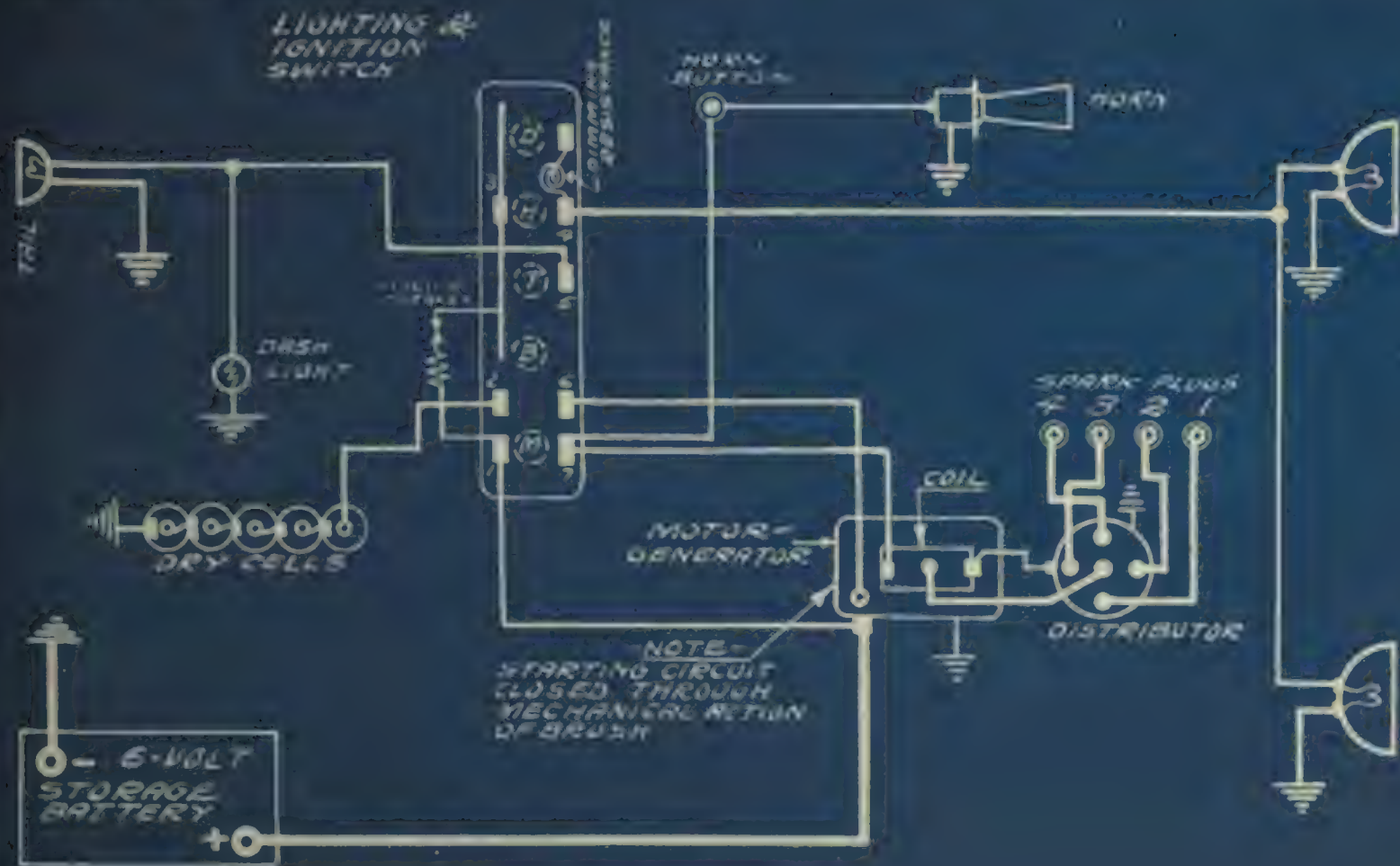
AUTOMOTIVE WIRING CO.  
CHICAGO, ILL.



# CARTER CAR 1915 MODEL 9

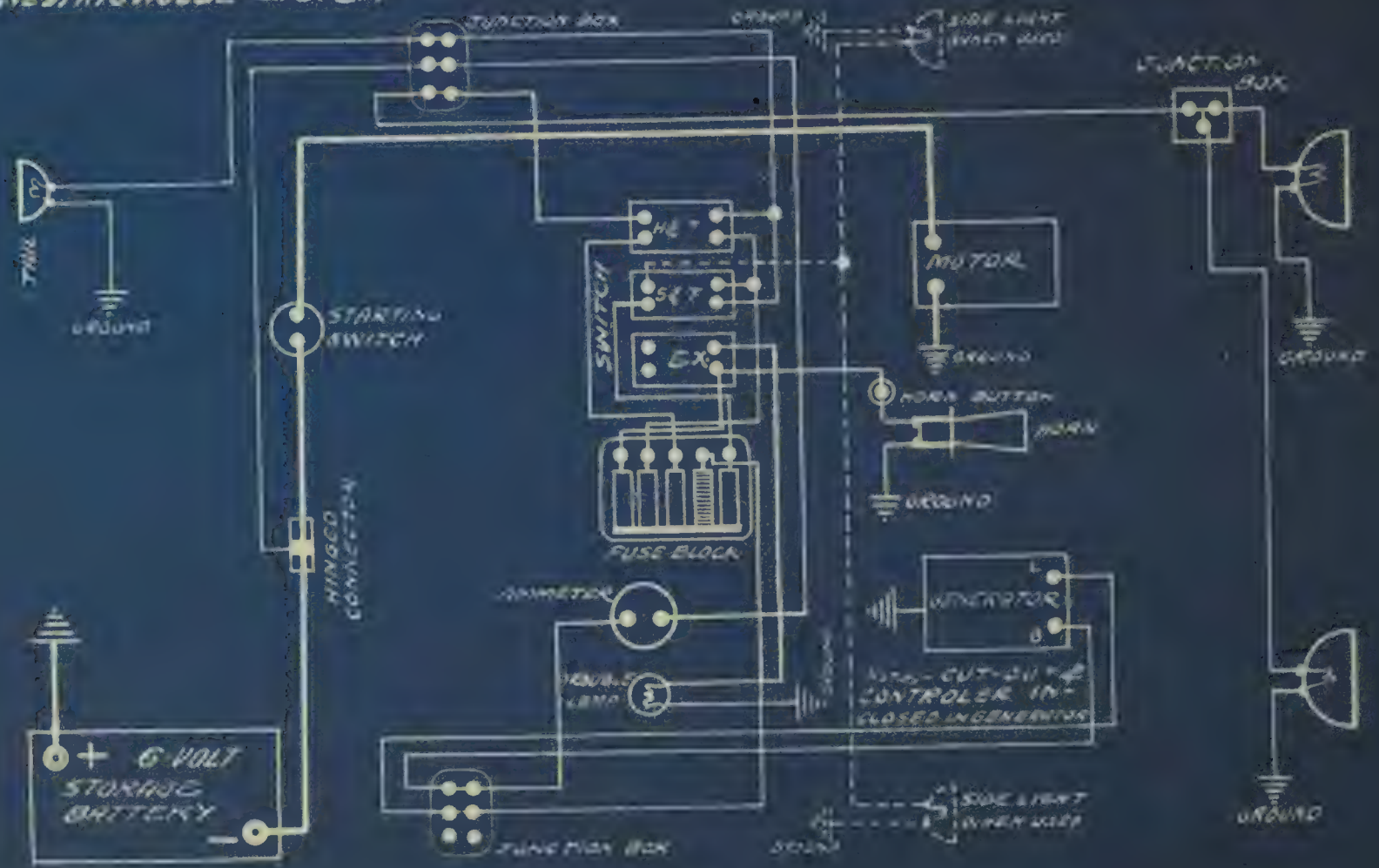
## DELCO SYSTEM

FROM DELCO MANUAL



# CASE 1914-5 "O" WESTINGHOUSE SYSTEM

FROM CASE BR 2552257

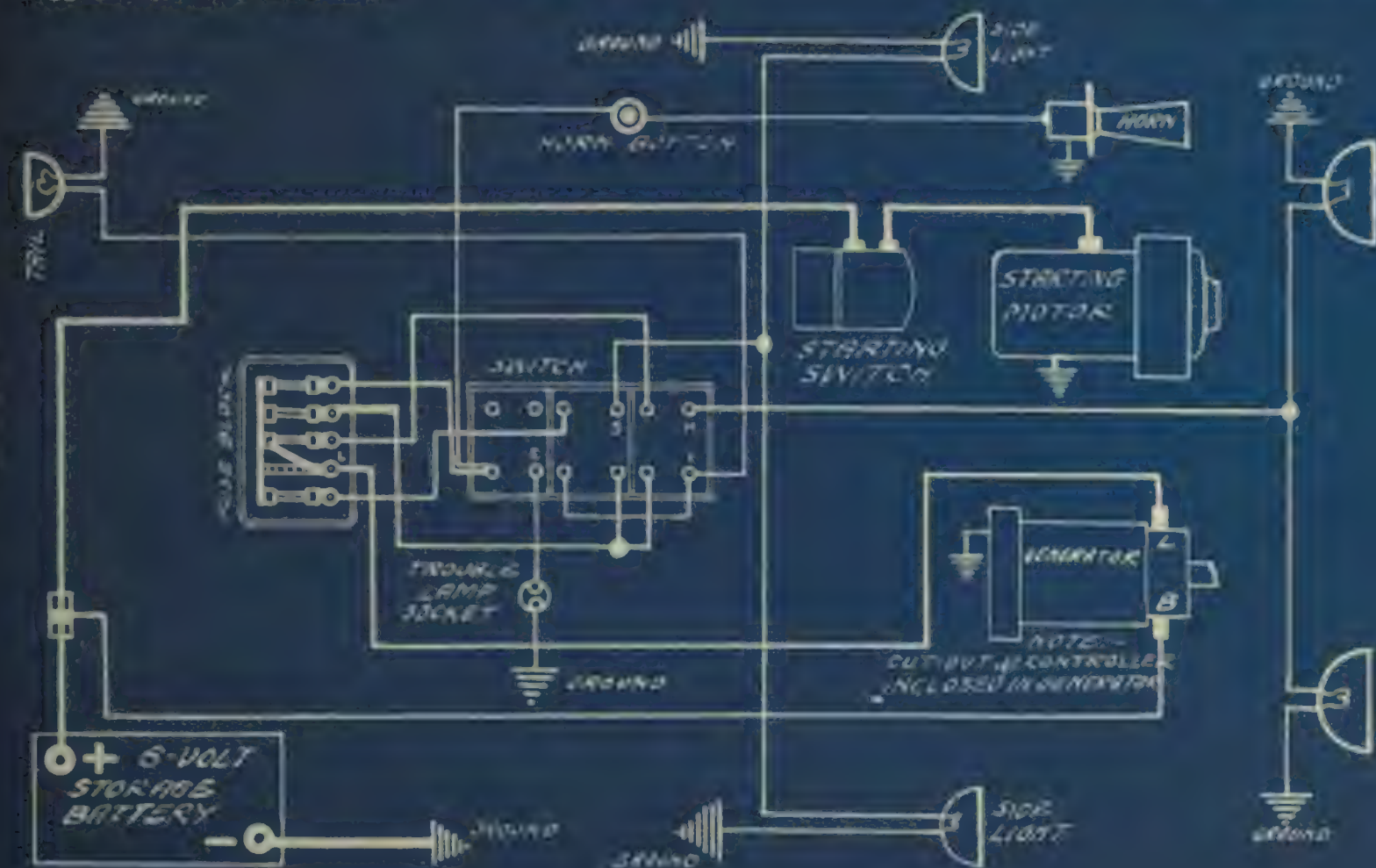




# CASE 1914-1915 MODEL "R"

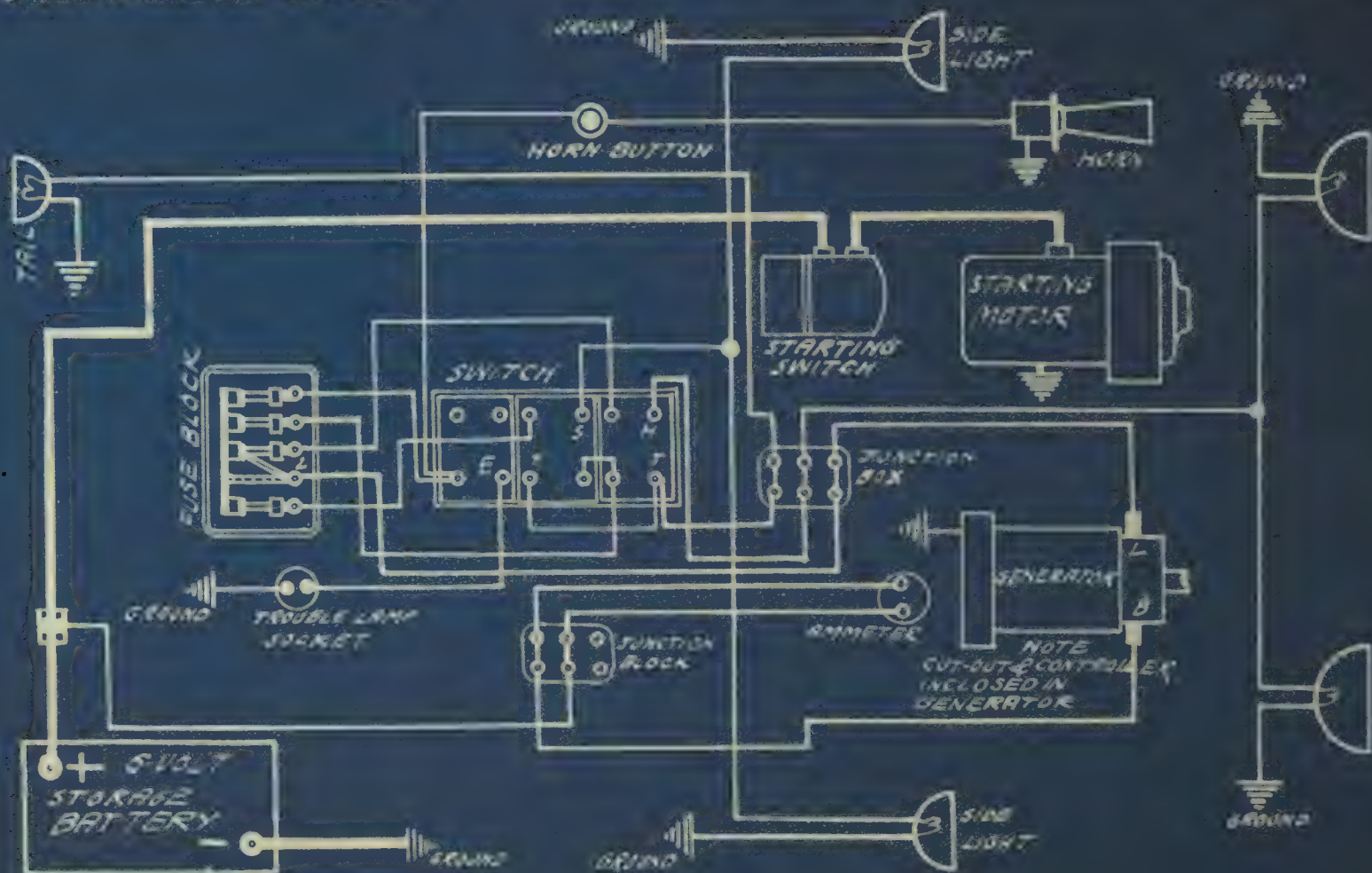
WESTINGHOUSE SYSTEM

WATSON PATENT OFFICE 245 M-92024674



# CASE 1914-1915 "5" WESTINGHOUSE SYSTEM

WIRING DIAGRAM OF 1914-1915 CASE "5" WESTINGHOUSE SYSTEM

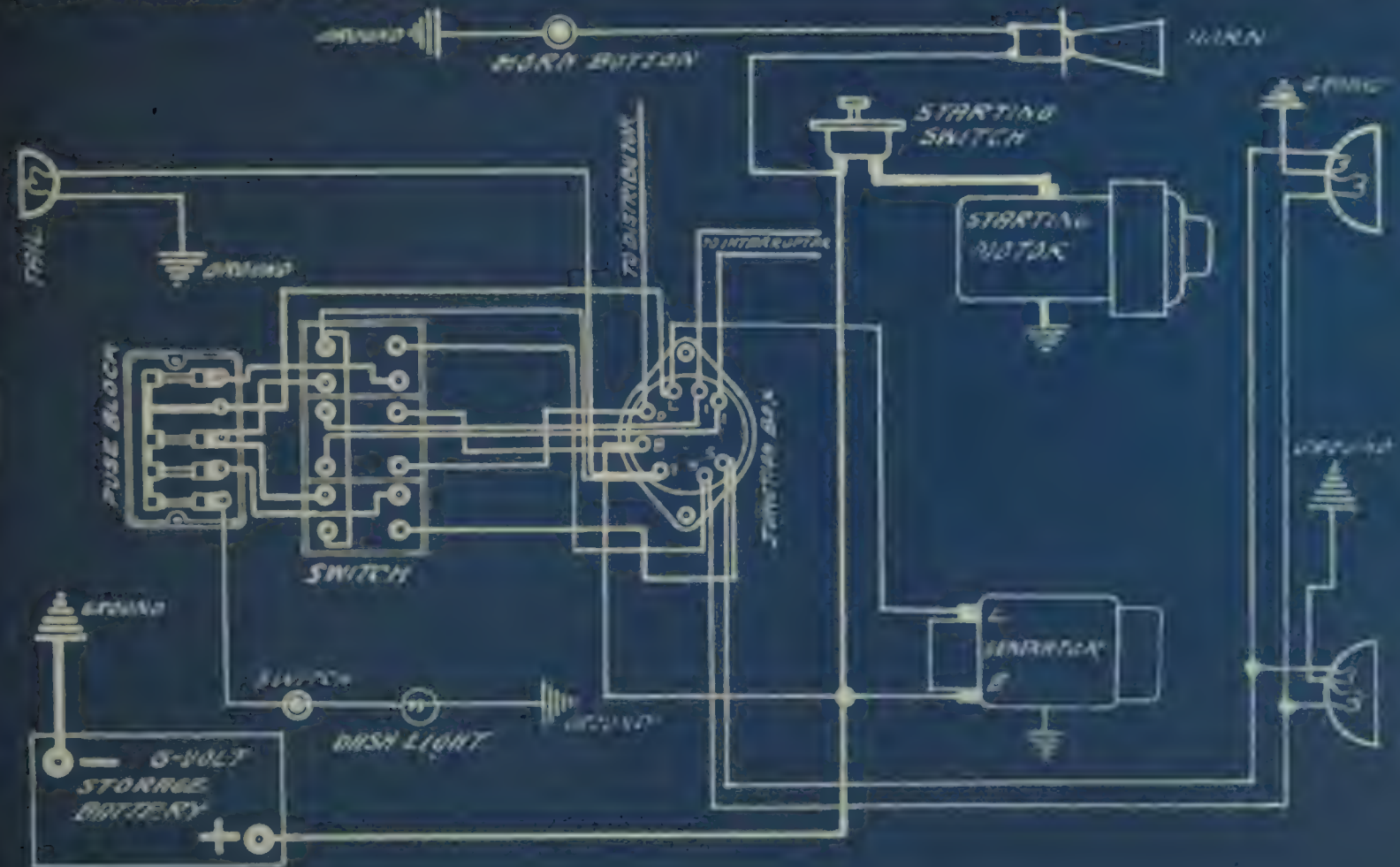




# CASE 1915 MODEL "R"

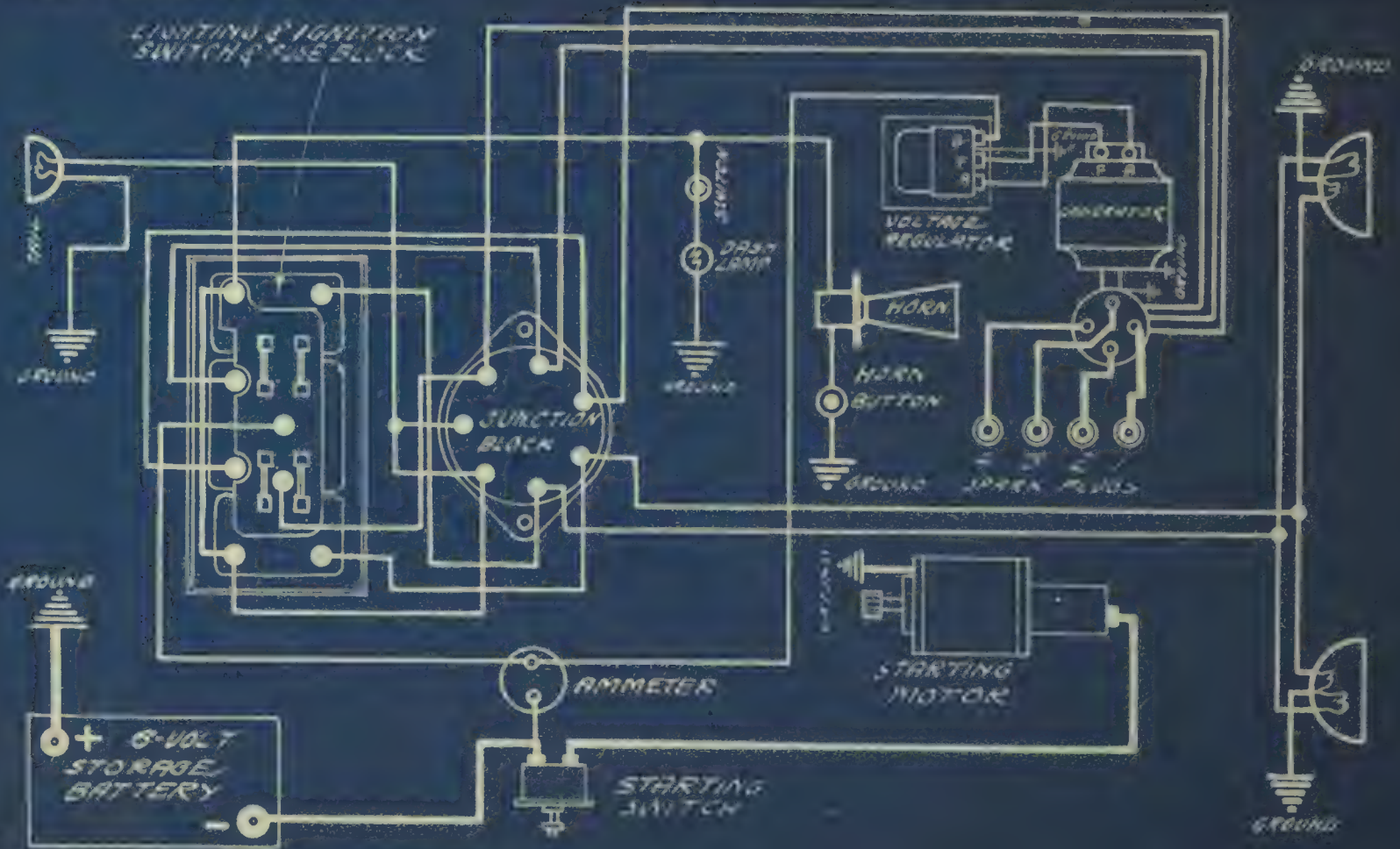
WESTINGHOUSE SYSTEM

FROM NEW CAR ELECTRICAL SYSTEM



CASE 1916 "T"  
NESTINGHOUSE SYSTEM

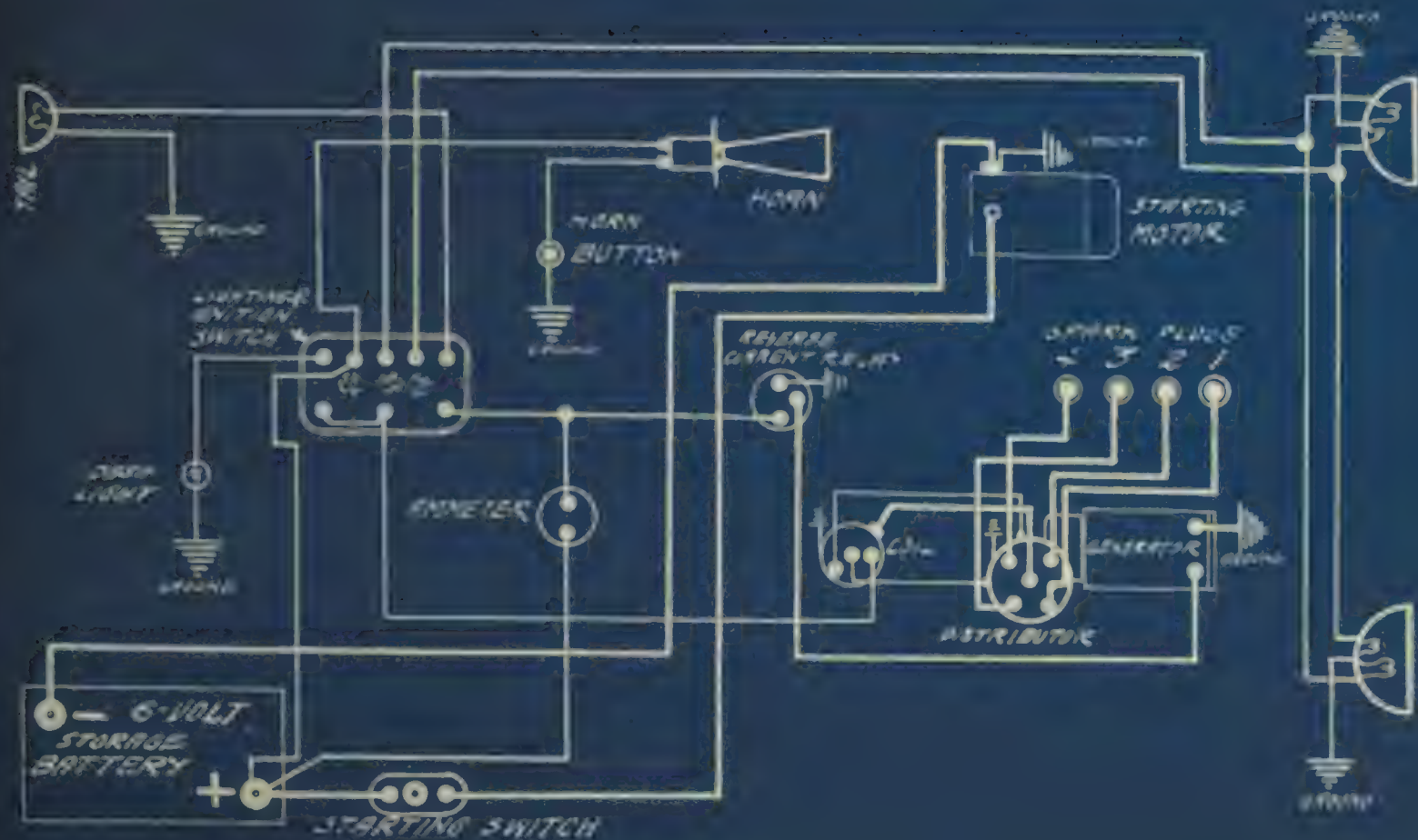
FROM MERS BP 020351-NP020352-N1.





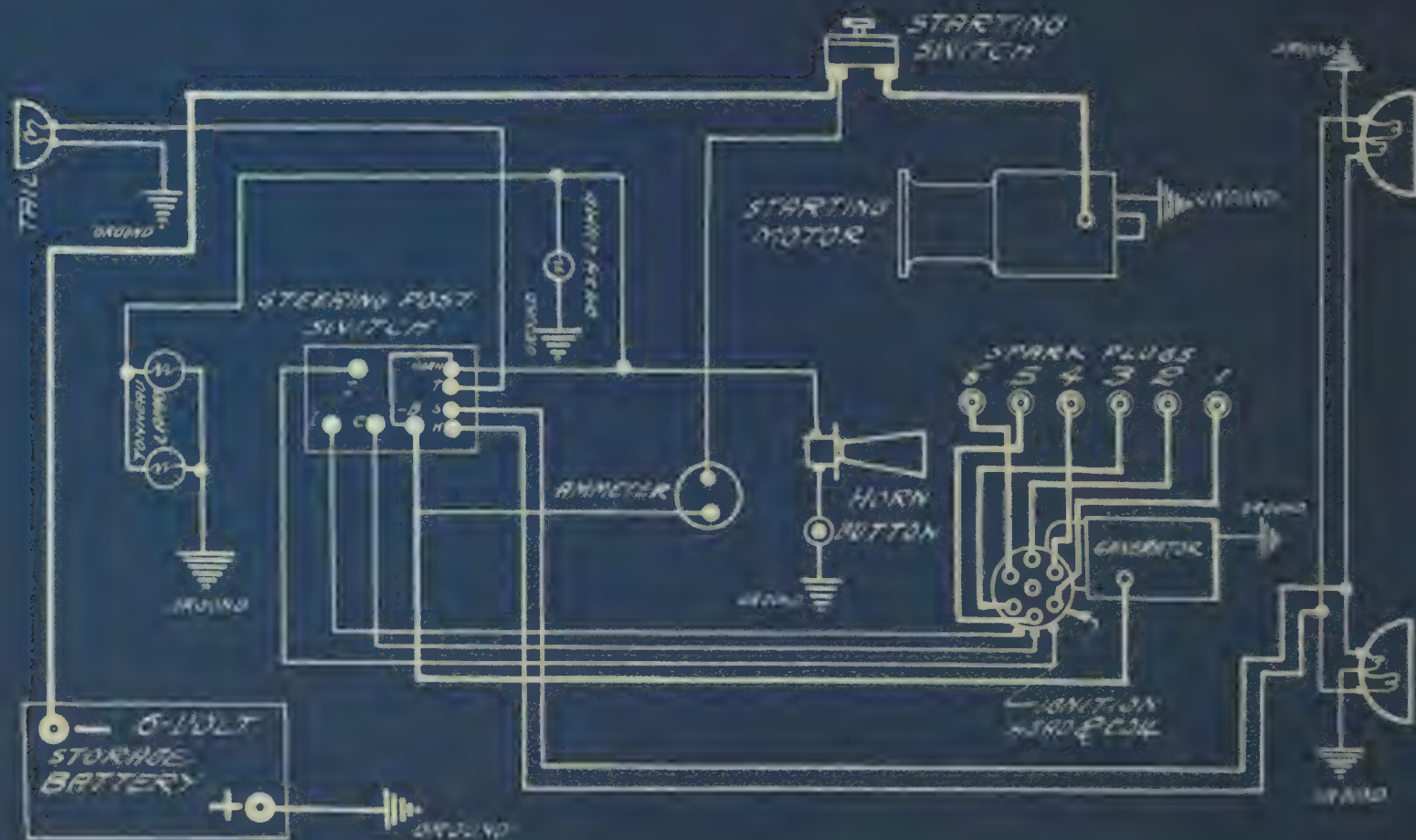
# CASE 1917 "T" AUTOLITE SYSTEM

FROM CASE BA 621035-11



CASE 1918 "U"  
WESTINGHOUSE SYSTEM

FROM MFRS. BM 021357-M



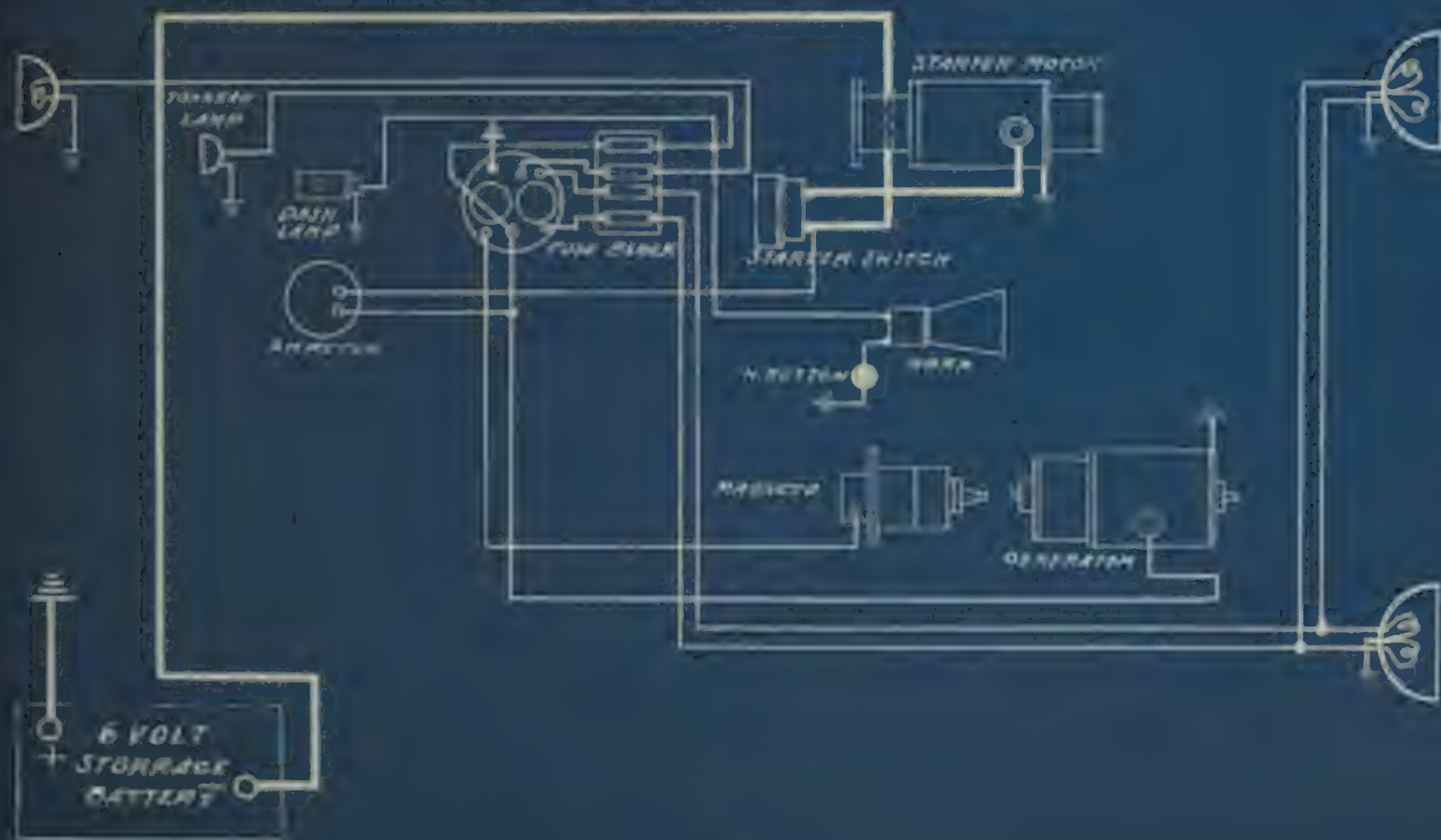
AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL. U.S.A.



# CASE 1920 MODEL "V"

FROM 1912 REPORTS-1917

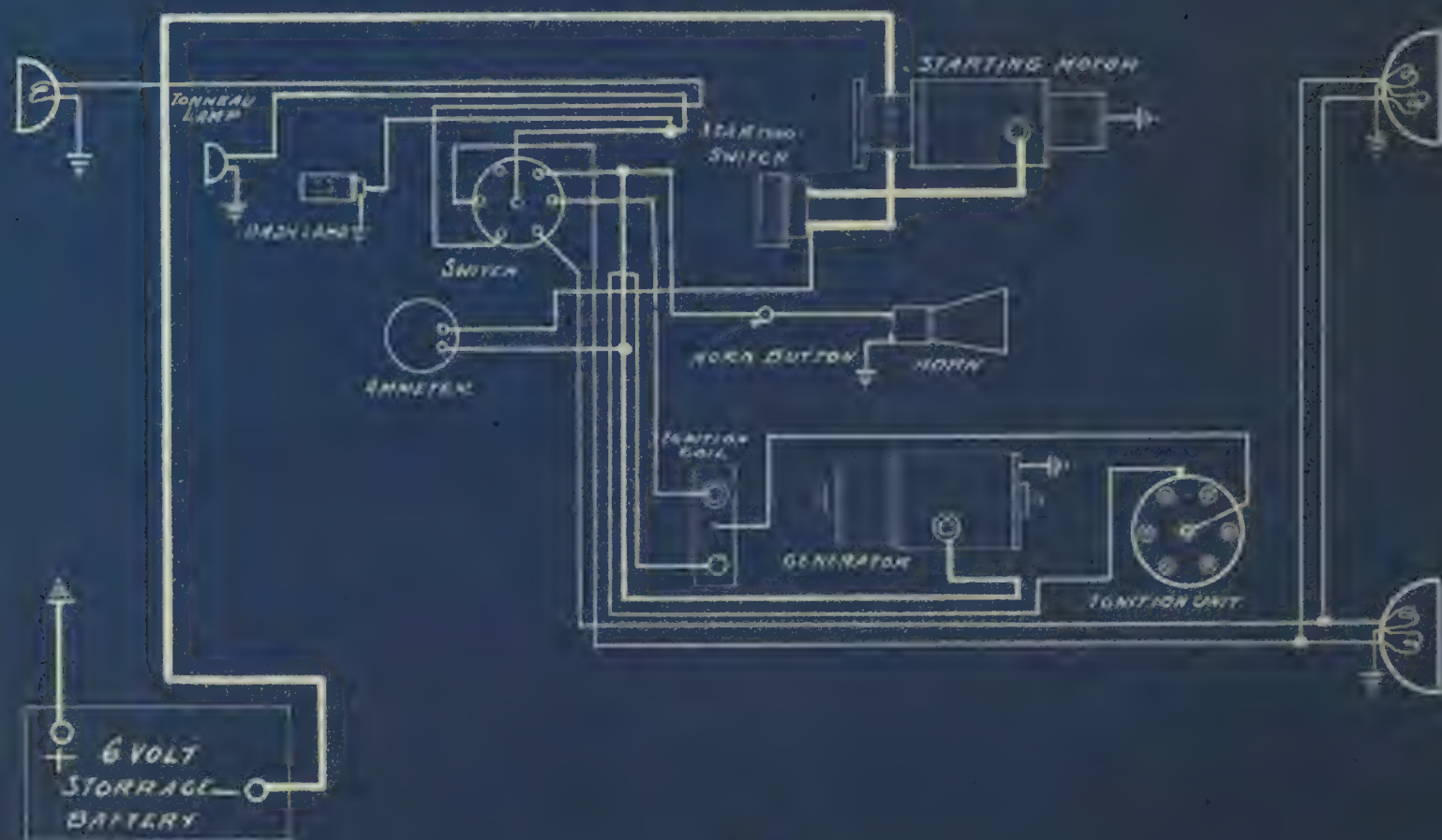
WESTINGHOUSE STARTING AND LIGHTING, BOSCH MAG. IGNITION



# CASE 1920 MODEL V

WESTINGHOUSE STARTING AND LIGHTING DELCO IGNITION

FROM WIRE (A.P.O.) 43-11

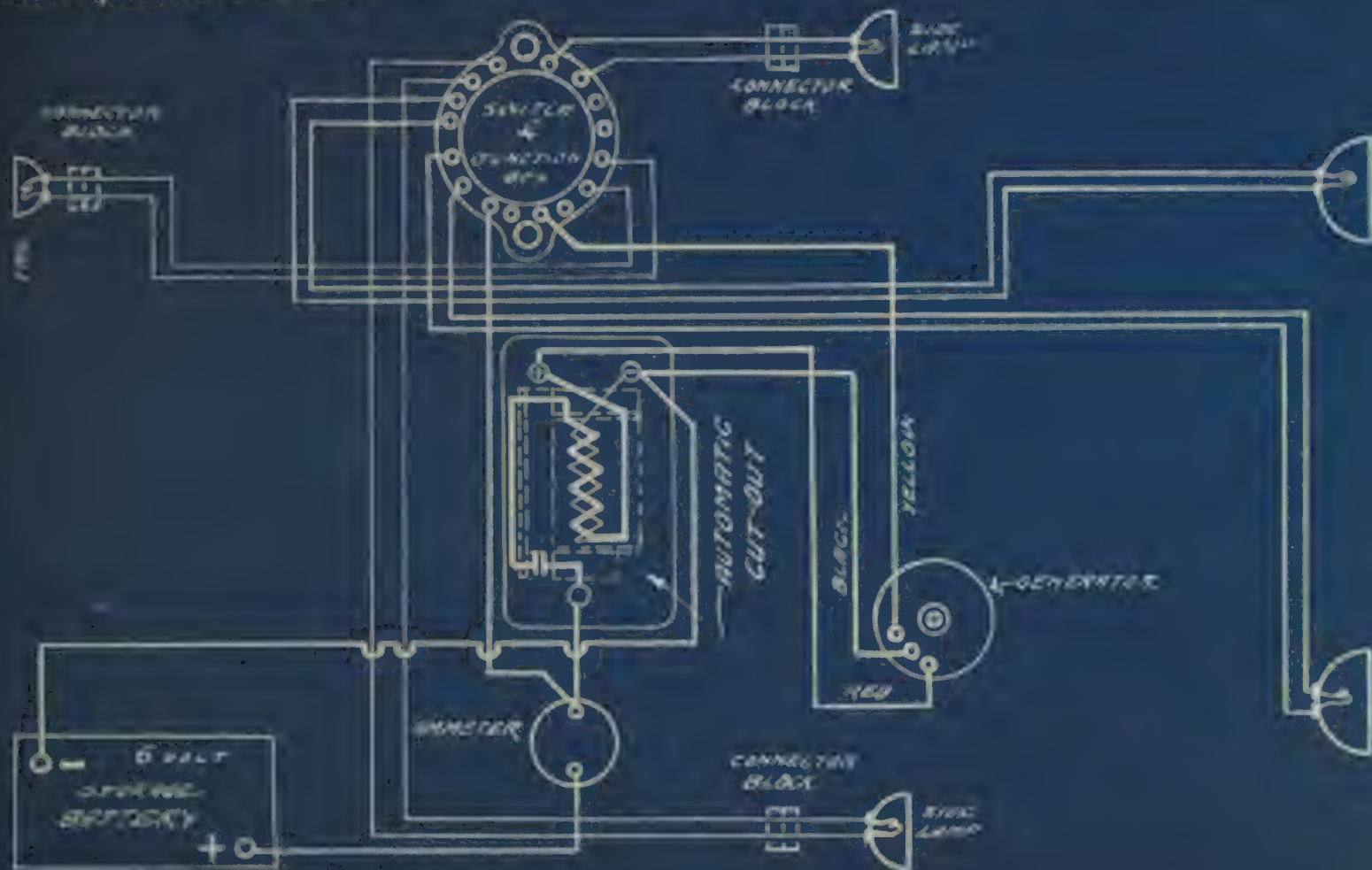


AUTOMOTIVE EQUIPMENT CO.  
CHICAGO, ILL.



# CHALMERS-1913-1914- MODELS 17, 18, 19. DRAY & DAVIS SYSTEM

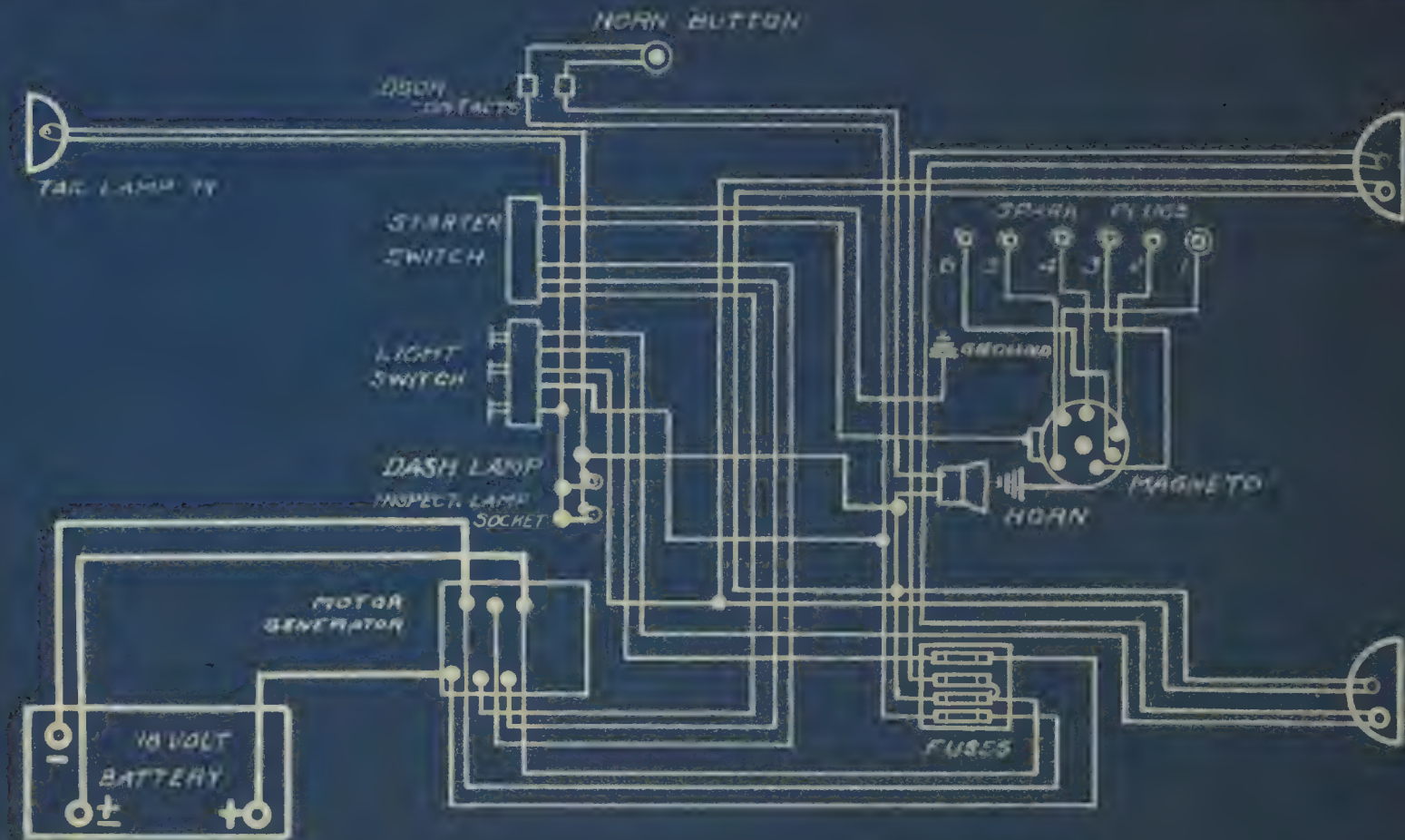
FROM MANUFACTURER'S



# CHALMERS 1914 "24"

ENTZ SYSTEM

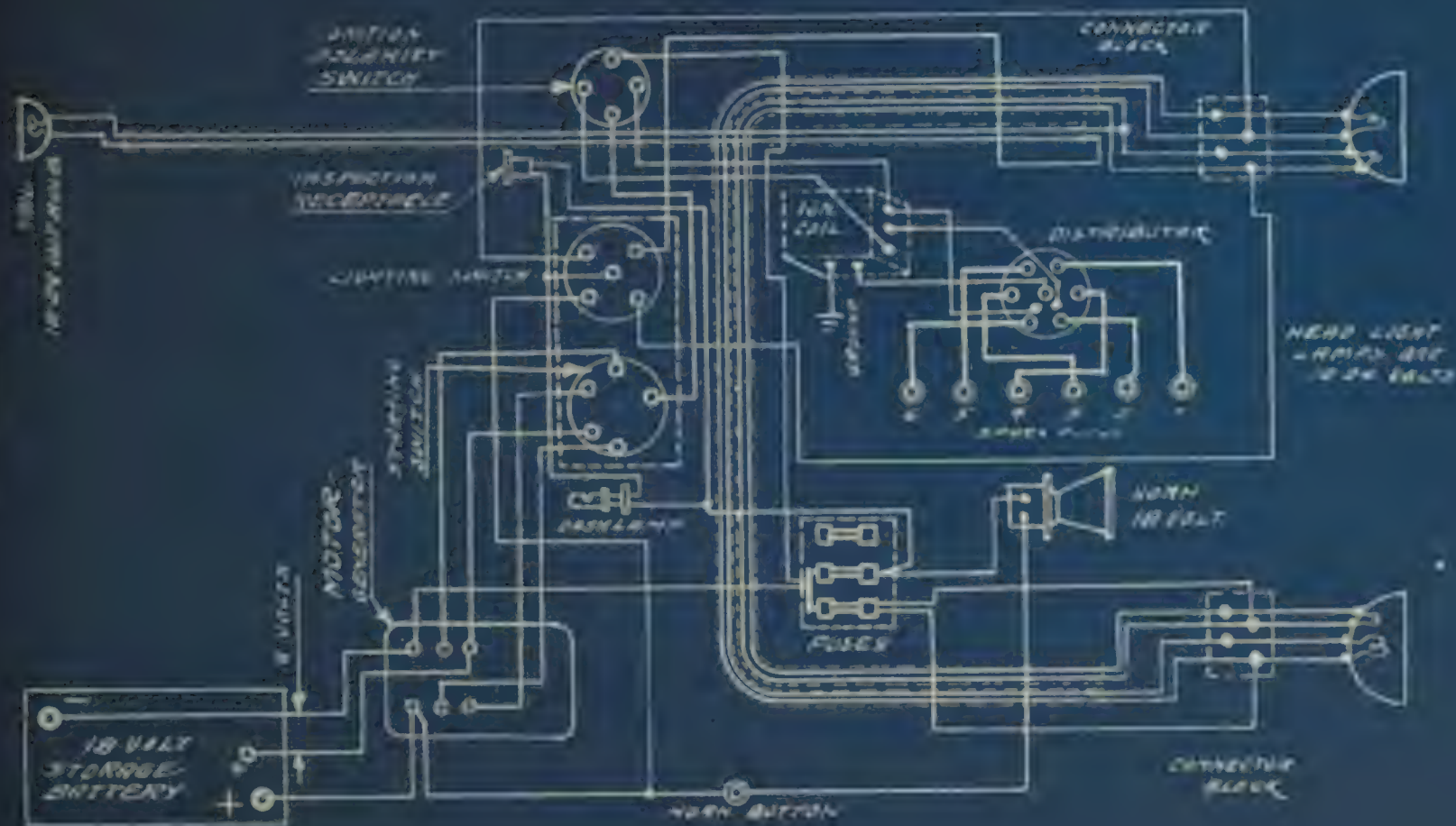
1914 CHALMERS 22-24-26-28





# CHALMERS 1915 MODEL 26 ENTR SYSTEM

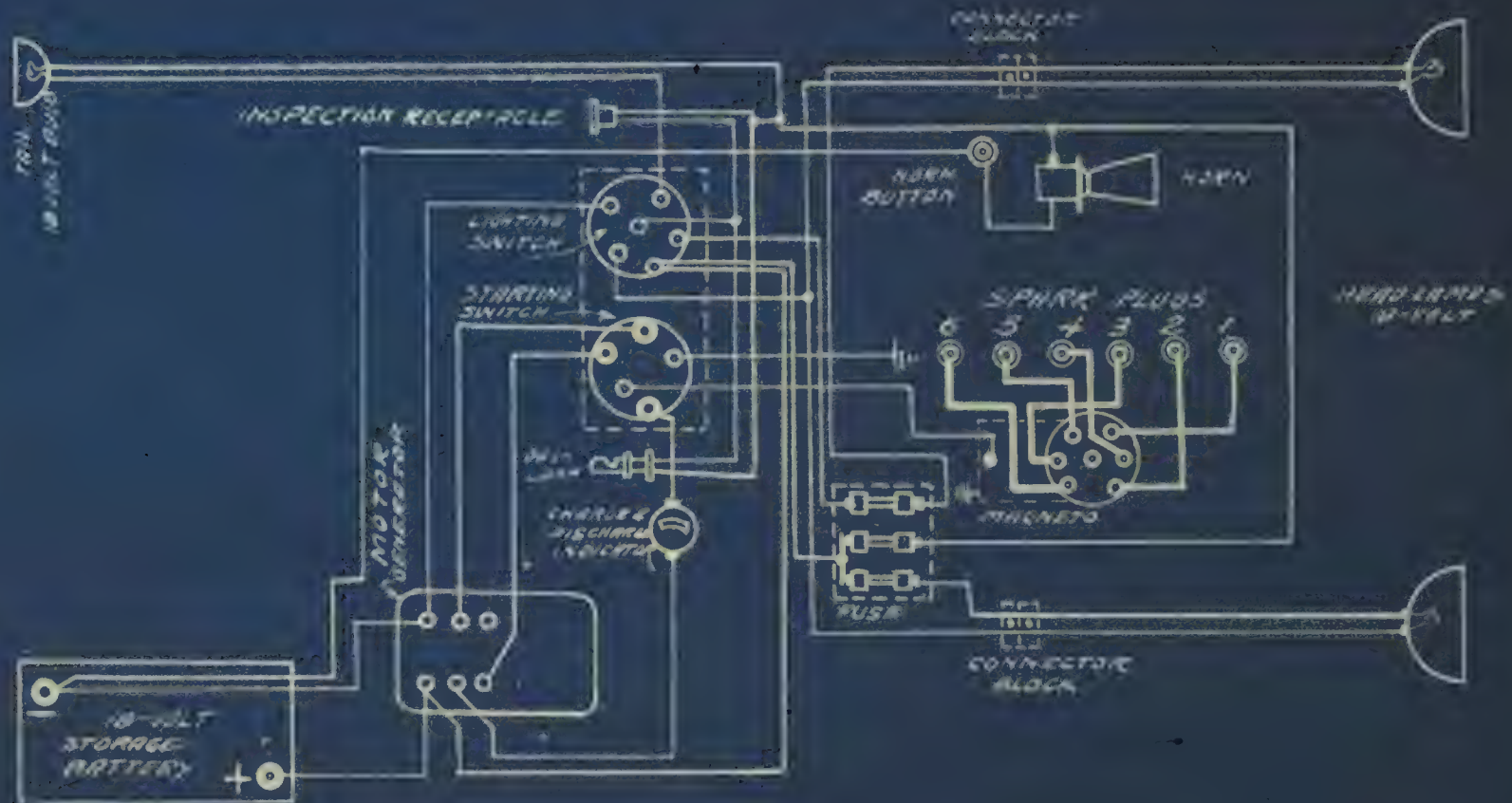
FROM HERSER, NY-1007.



# CHALMERS 1915 MODEL 29

## ENTZ SYSTEM

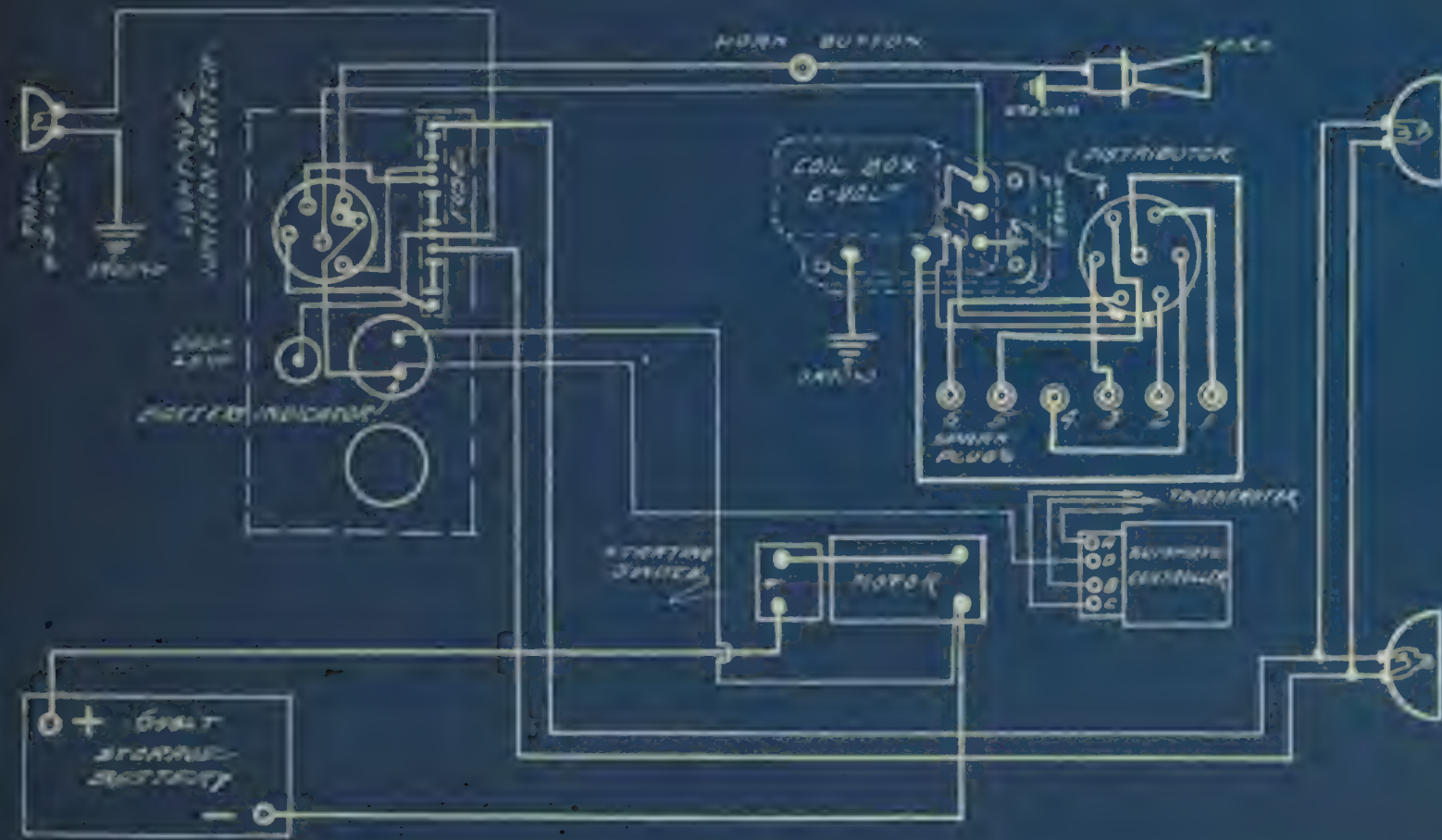
FROM MARS BA N-4-1081





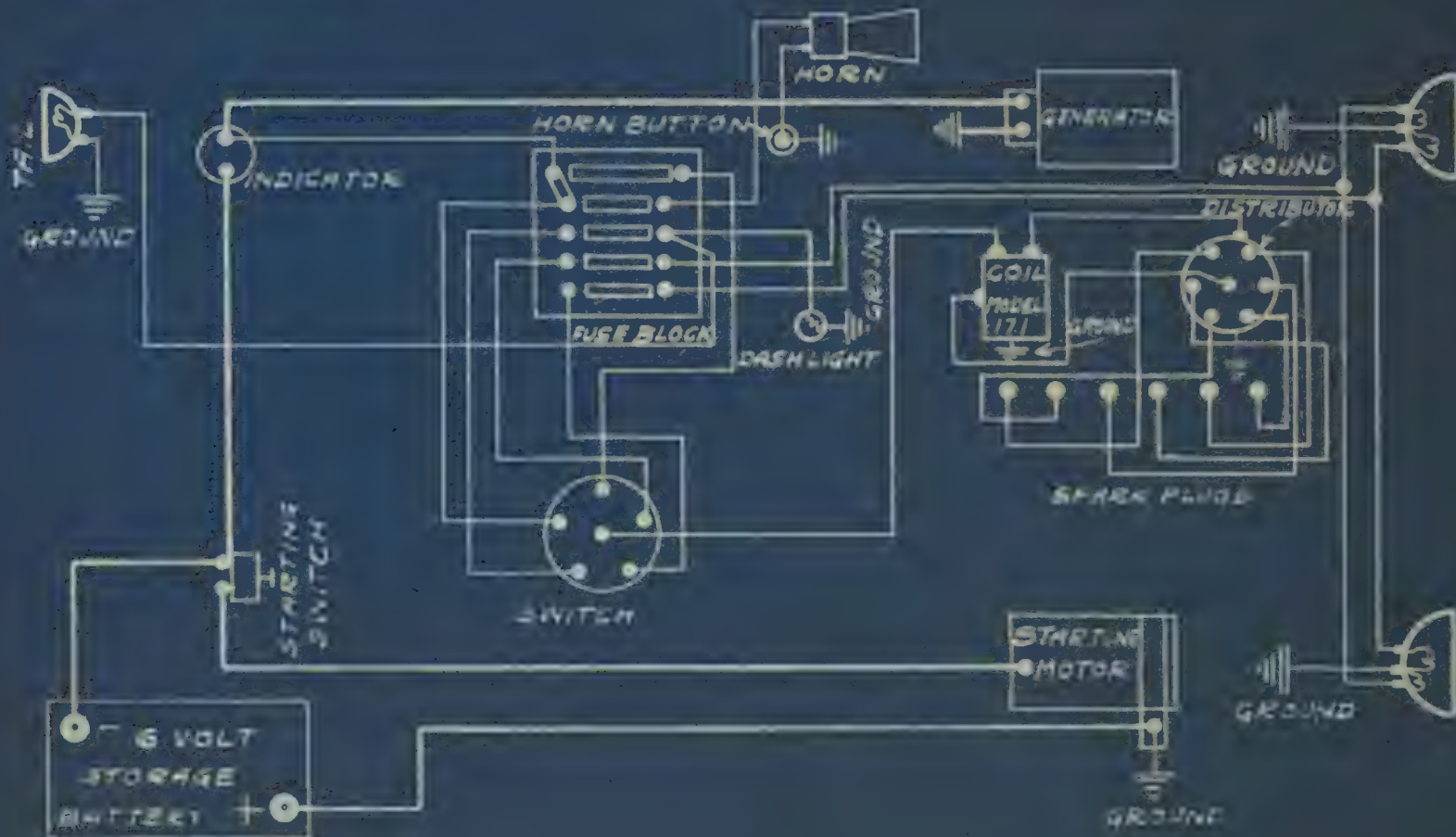
**CHALMERS 1915/1916 MODELS 32 6-40**  
**WESTINGHOUSE SYSTEM USED AFTER FIRST 3000 CARS**

FROM MERS. BR. H-1-1657



CHALMERS 1916 "35"  
WESTINGHOUSE SYSTEM  
REMY IGNITION

FROM REPT INST BOOK





# CHALMERS SIX30 MODEL 35A & 35B 1917-1918

WESTINGHOUSE SYSTEM

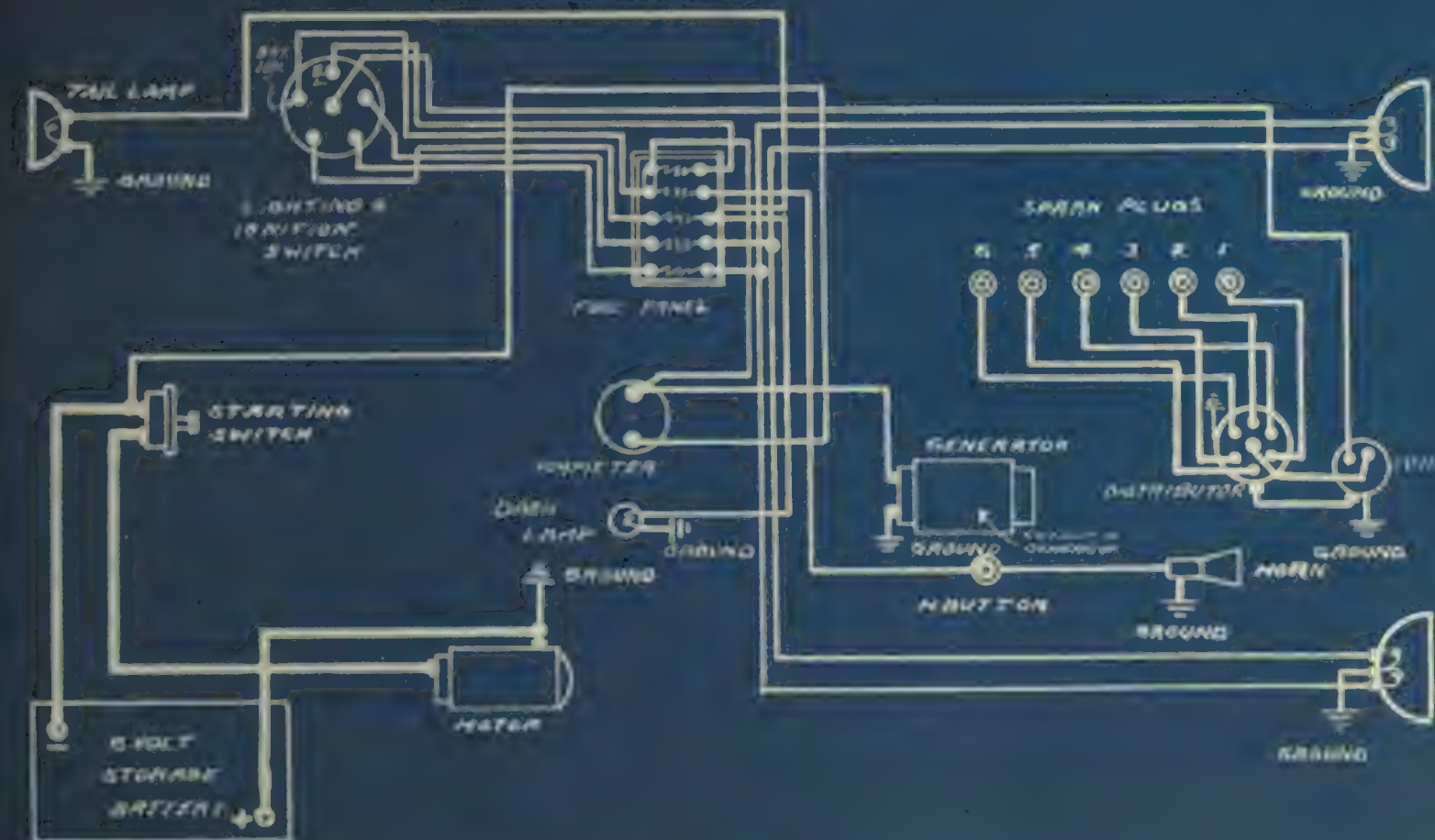
USED ON CARS WITH SERIAL NUMBERS

FROM 1445 B.P.

32001 TO 33000

NH-1573

34001 TO 35000

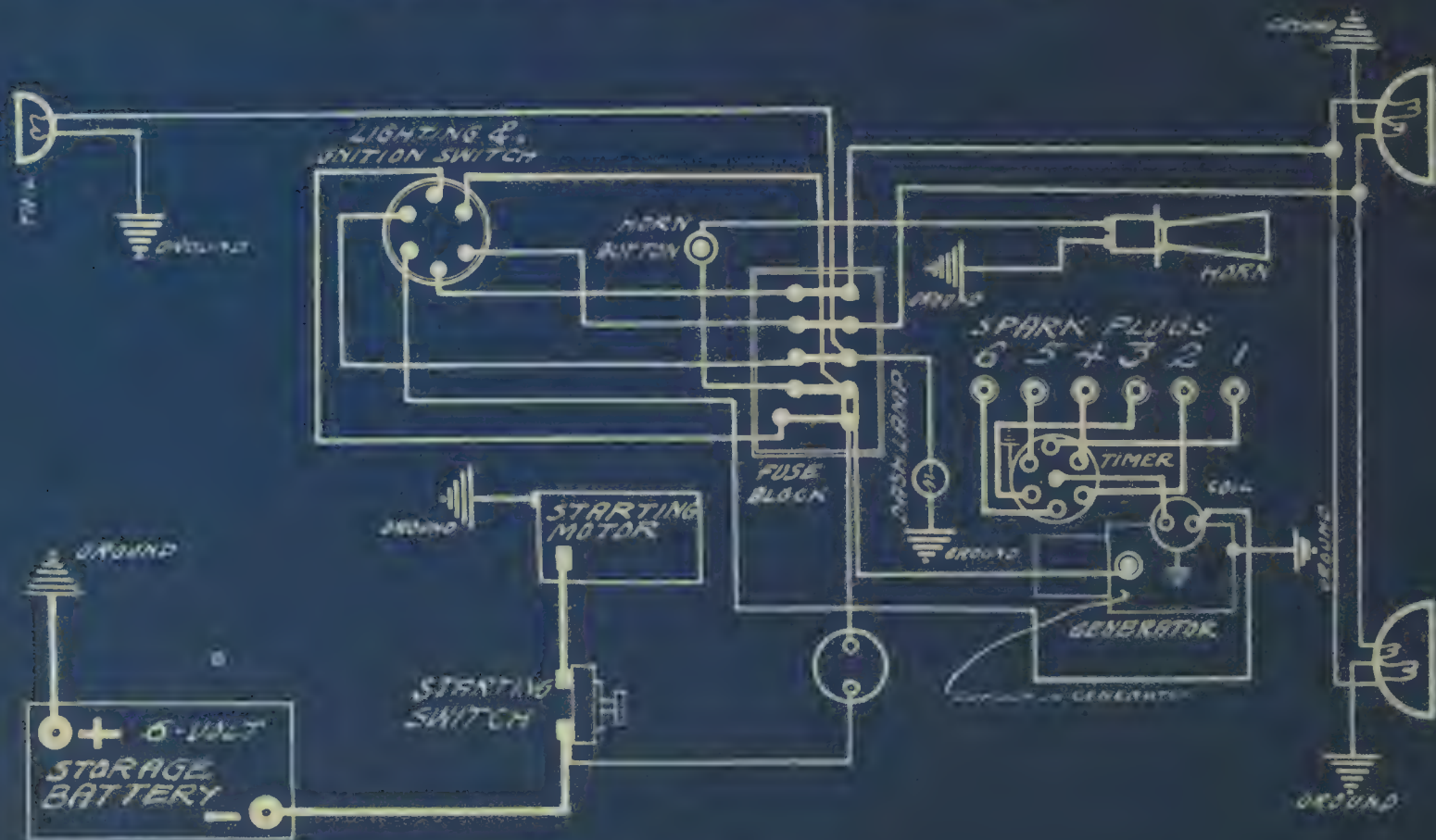


# CHALMERS 1918 35-C - 1919 EARLY MODELS

WESTINGHOUSE SYSTEM - REMY IGNITION

FROM REFS & PM-263

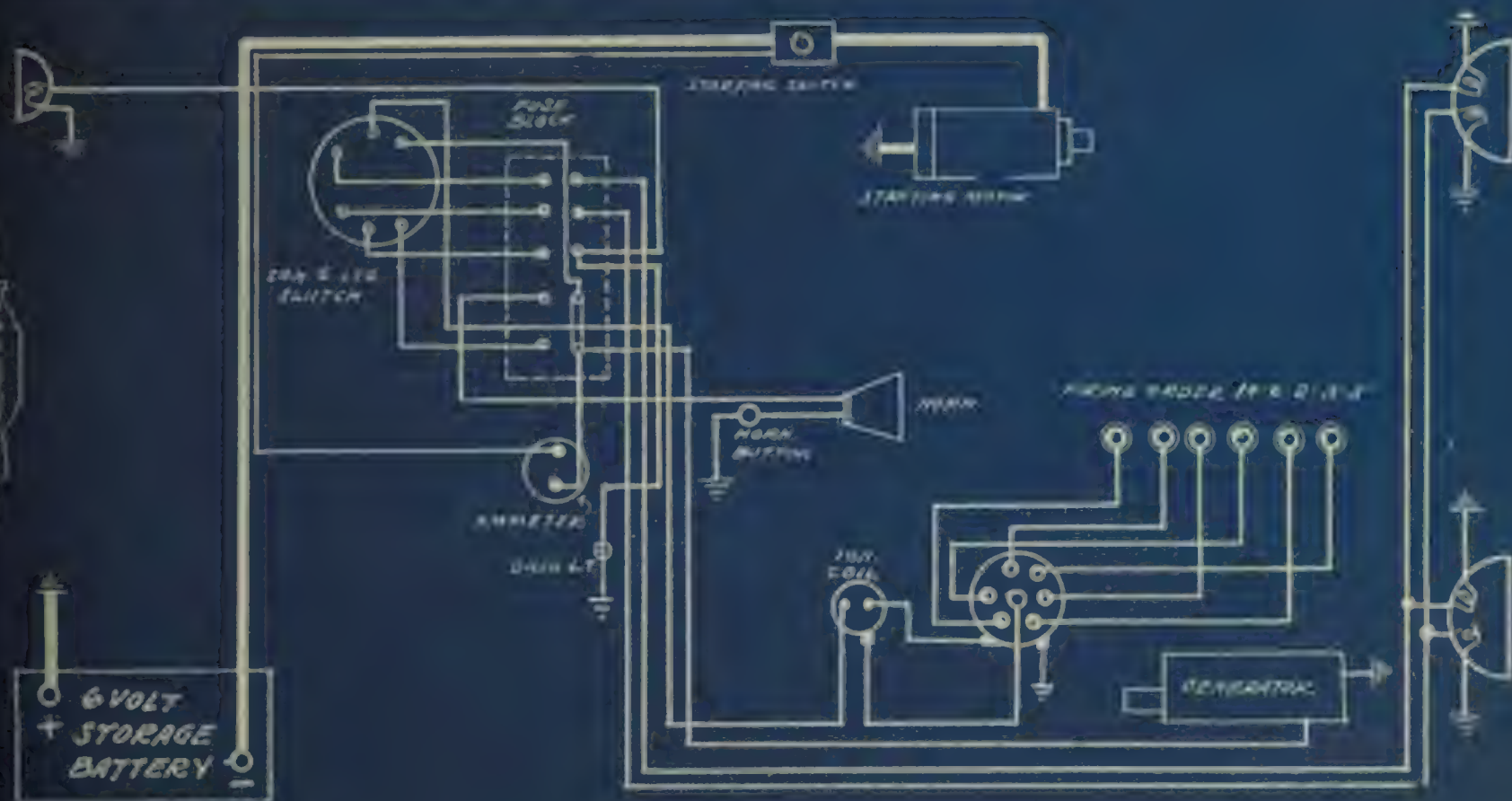
USED AFTER 1ST 300 MODEL 35B SPECIALS





**CHALMERS "6-30" 1920**  
**WESTINGHOUSE START & LIGHT**  
**REMY IGN.**

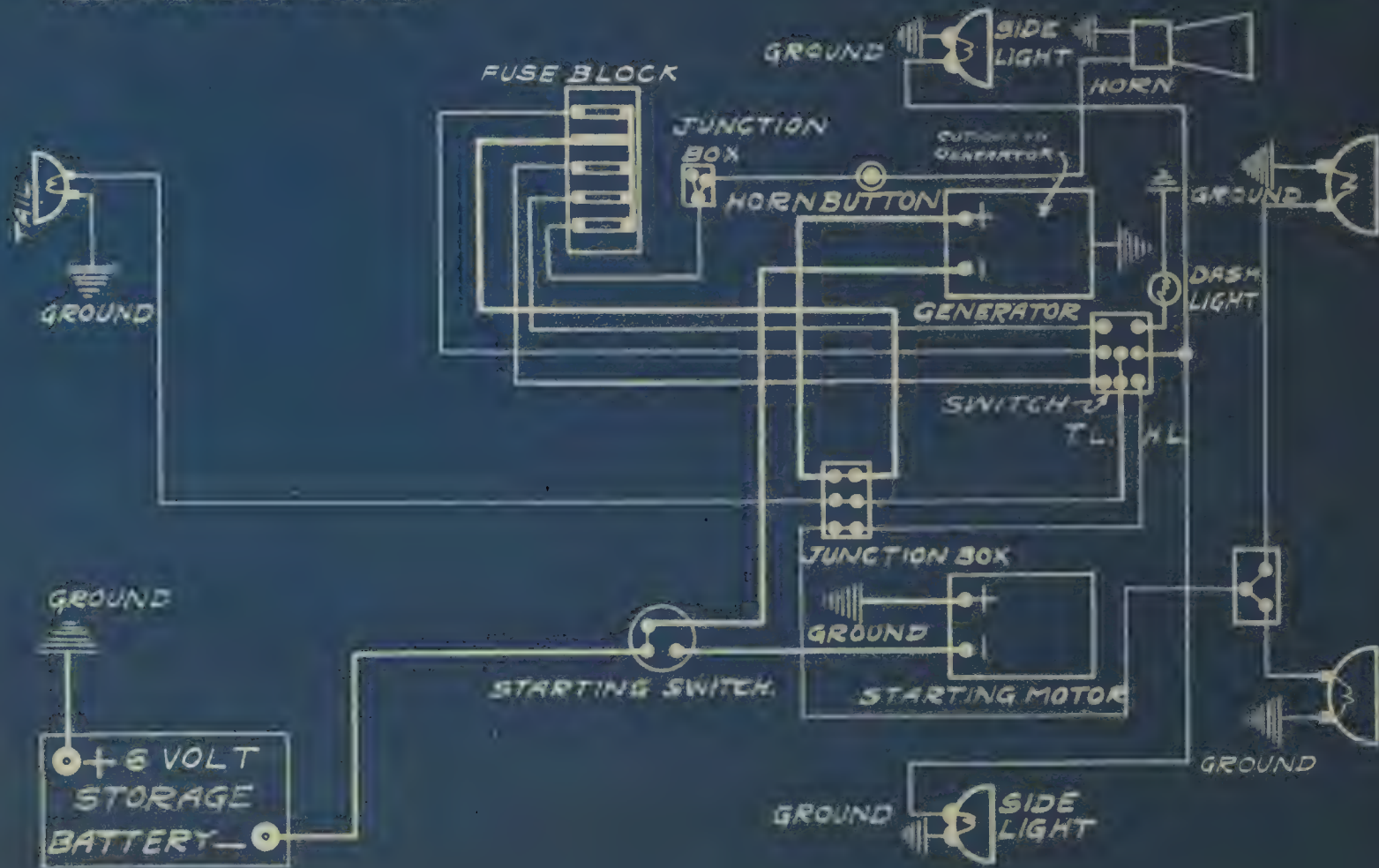
WIGHT HORN & P. W. L. 2431



# CHANDLER 1913

WESTINGHOUSE SYSTEM

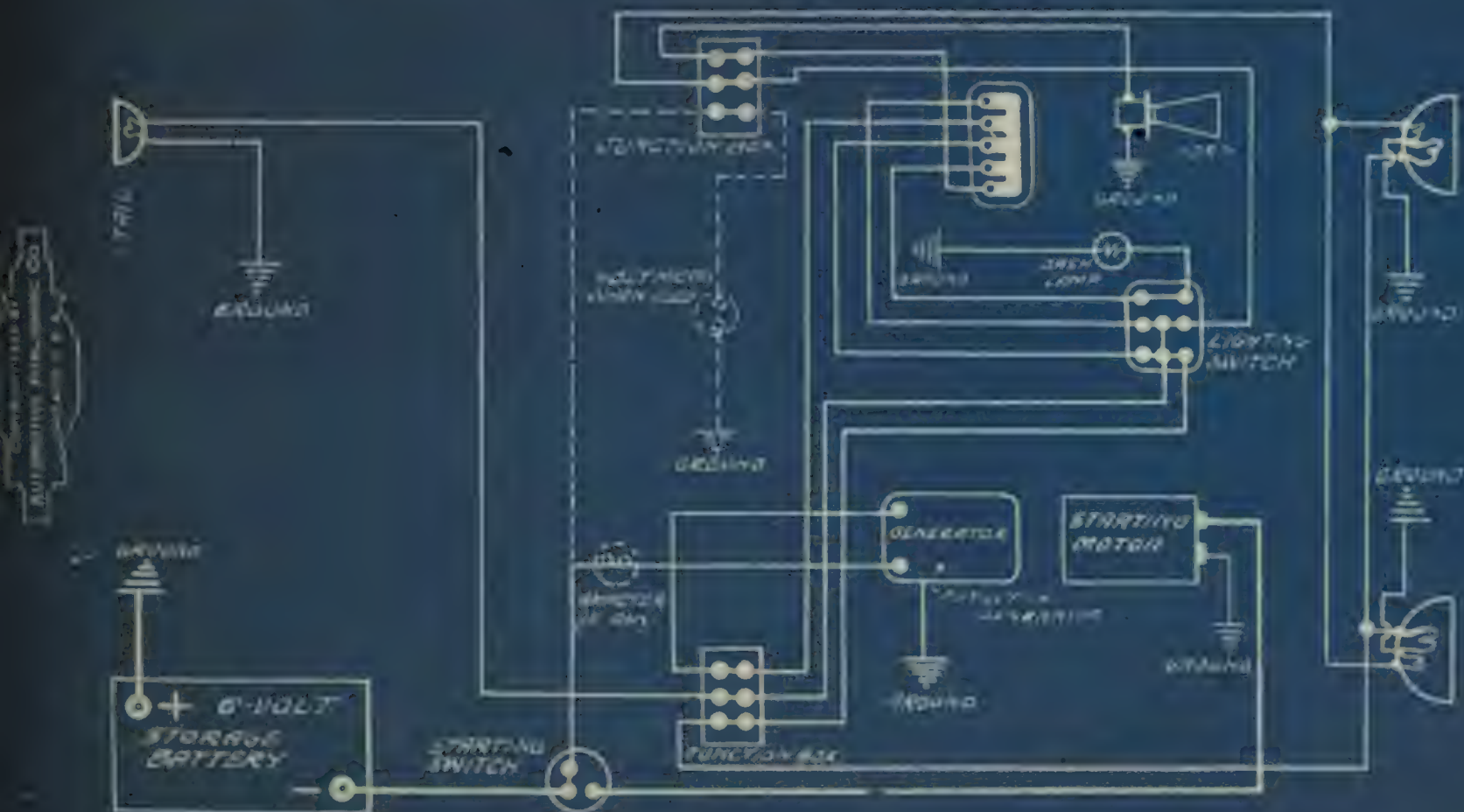
FROM MFRS. B.P. 230





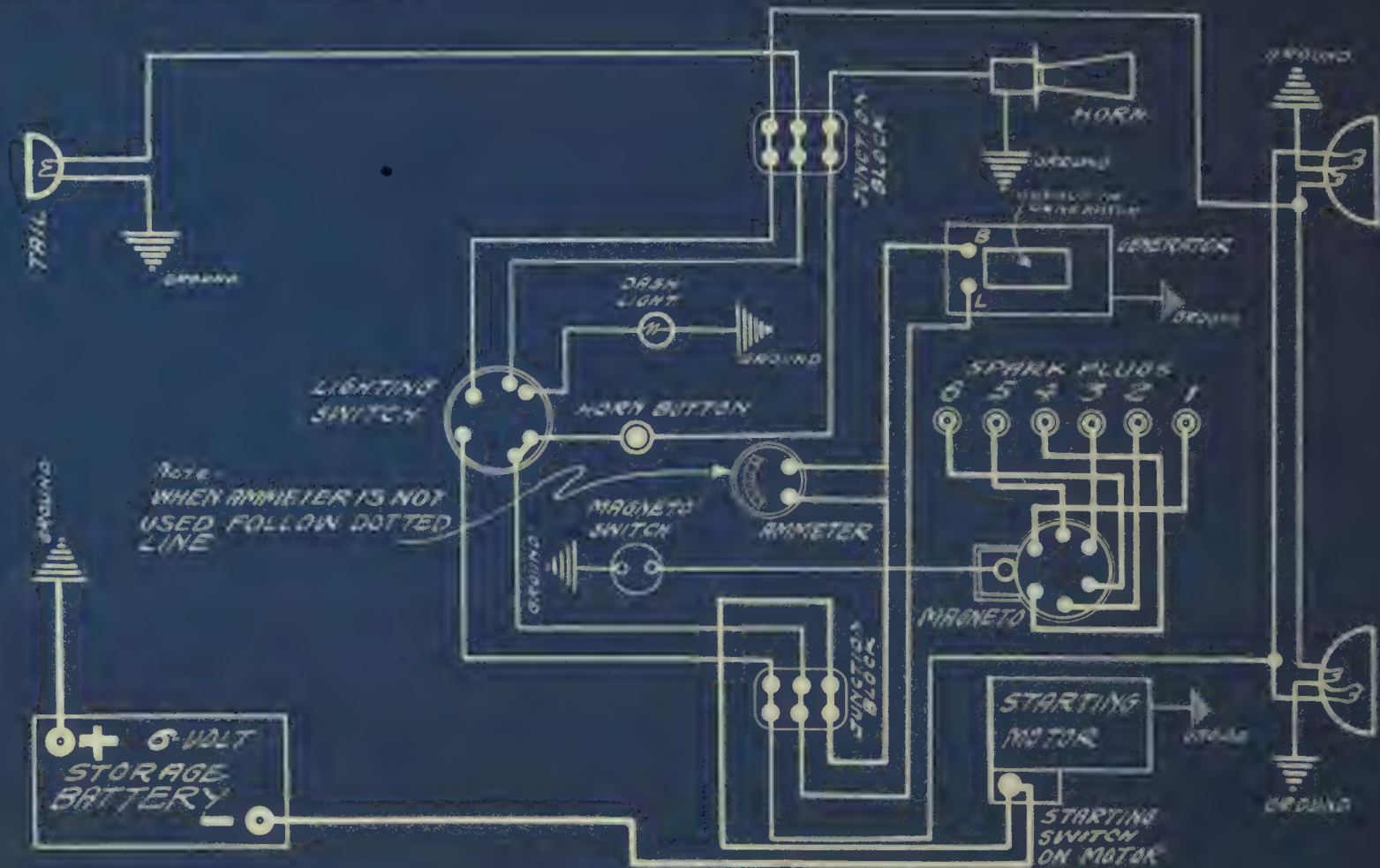
# CHANDLER 1914 WESTINGHOUSE SYSTEM

FROM MARS BP 2120



# CHANDLER 1914-1915 GARY & DAVIS SYSTEM

FROM MARS BR 2340 & BR 2440



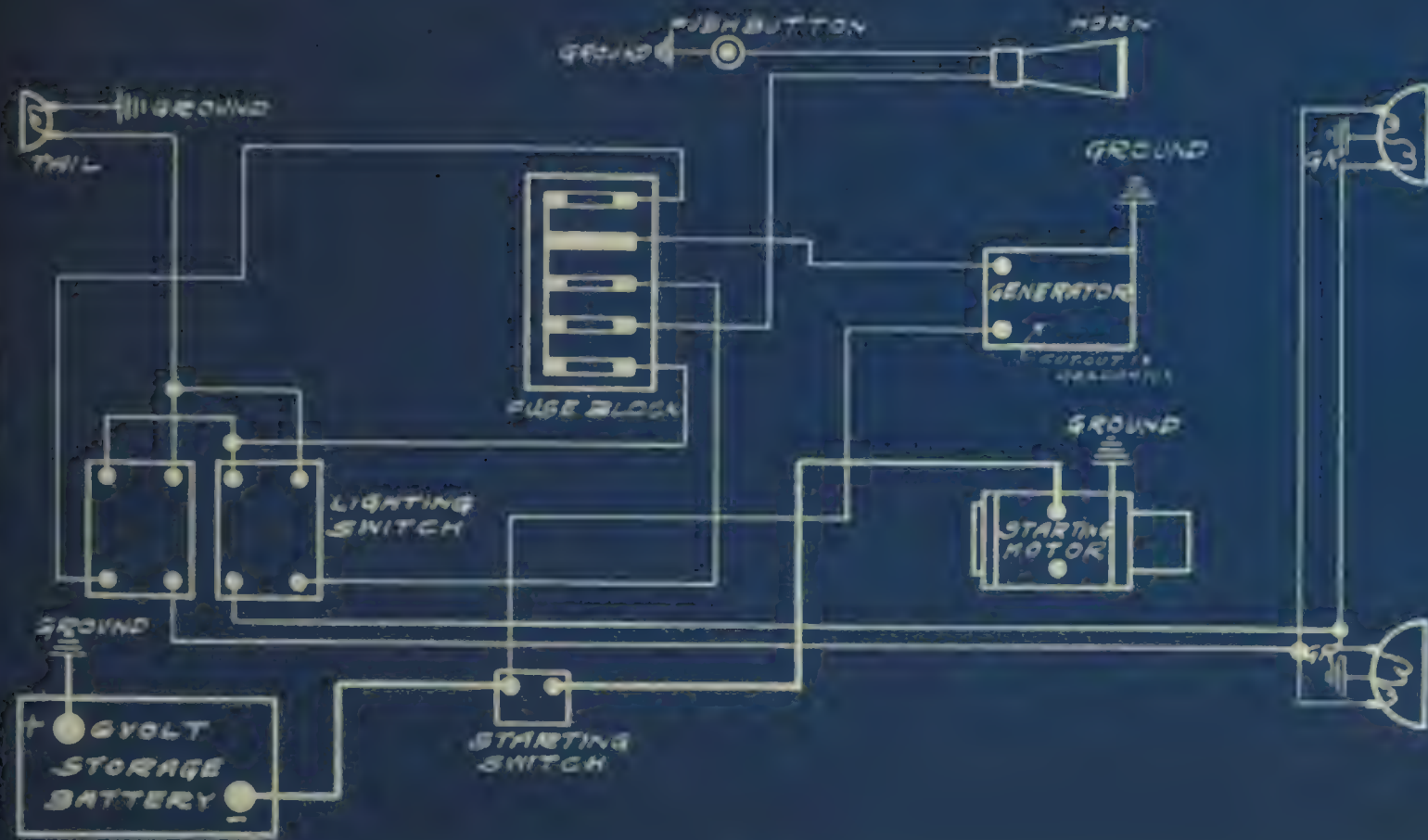
Automotive Publishing Co.  
PUBLISHED IN U.S.A.

# CHANDLER 1916

WESTING HOUSE SYSTEM

FROM WEST PLATE 45

Copyright 1916 by  
AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL.

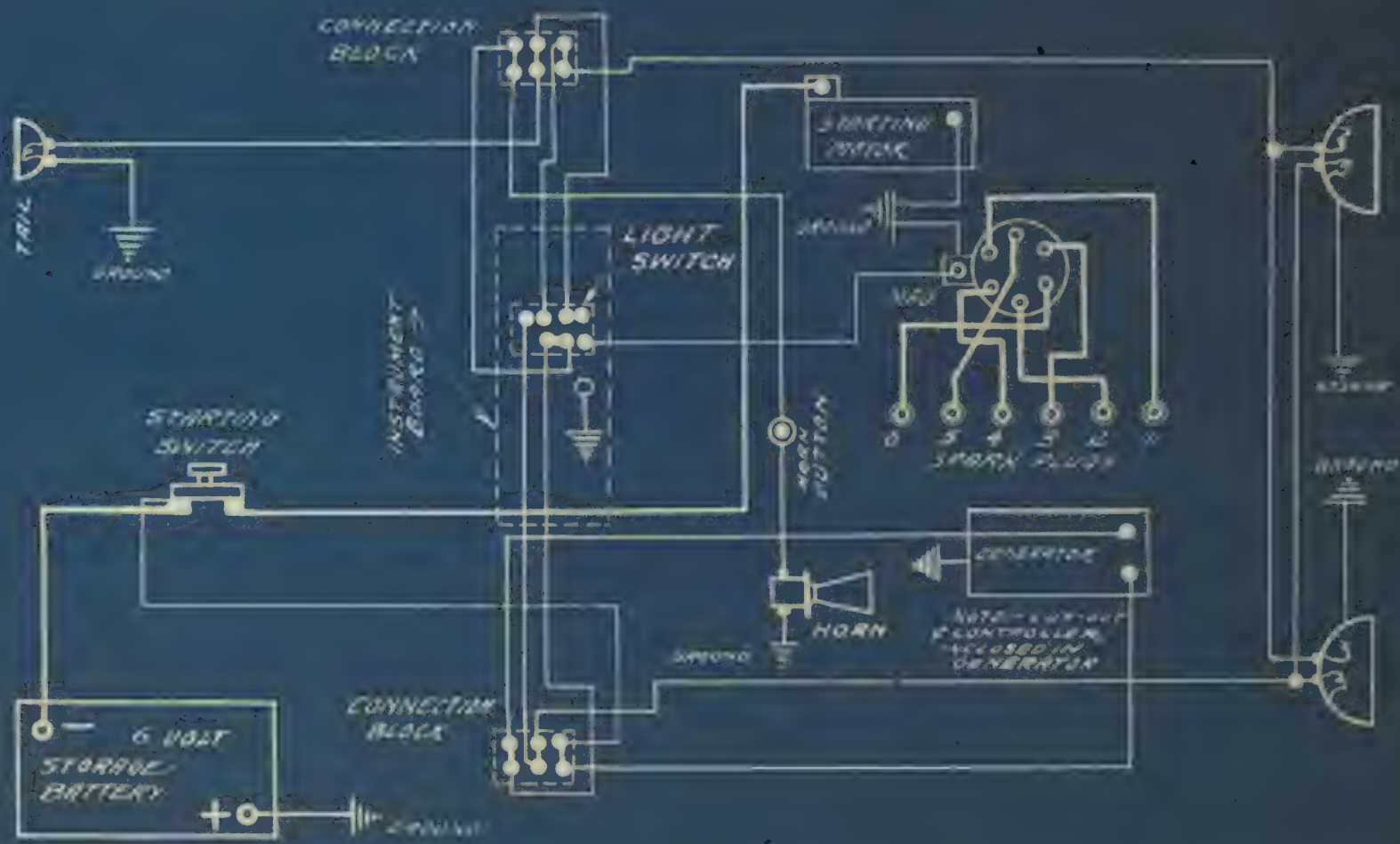




# CHANDLER 1916 "17"

GRAY & DAVIS SYSTEM

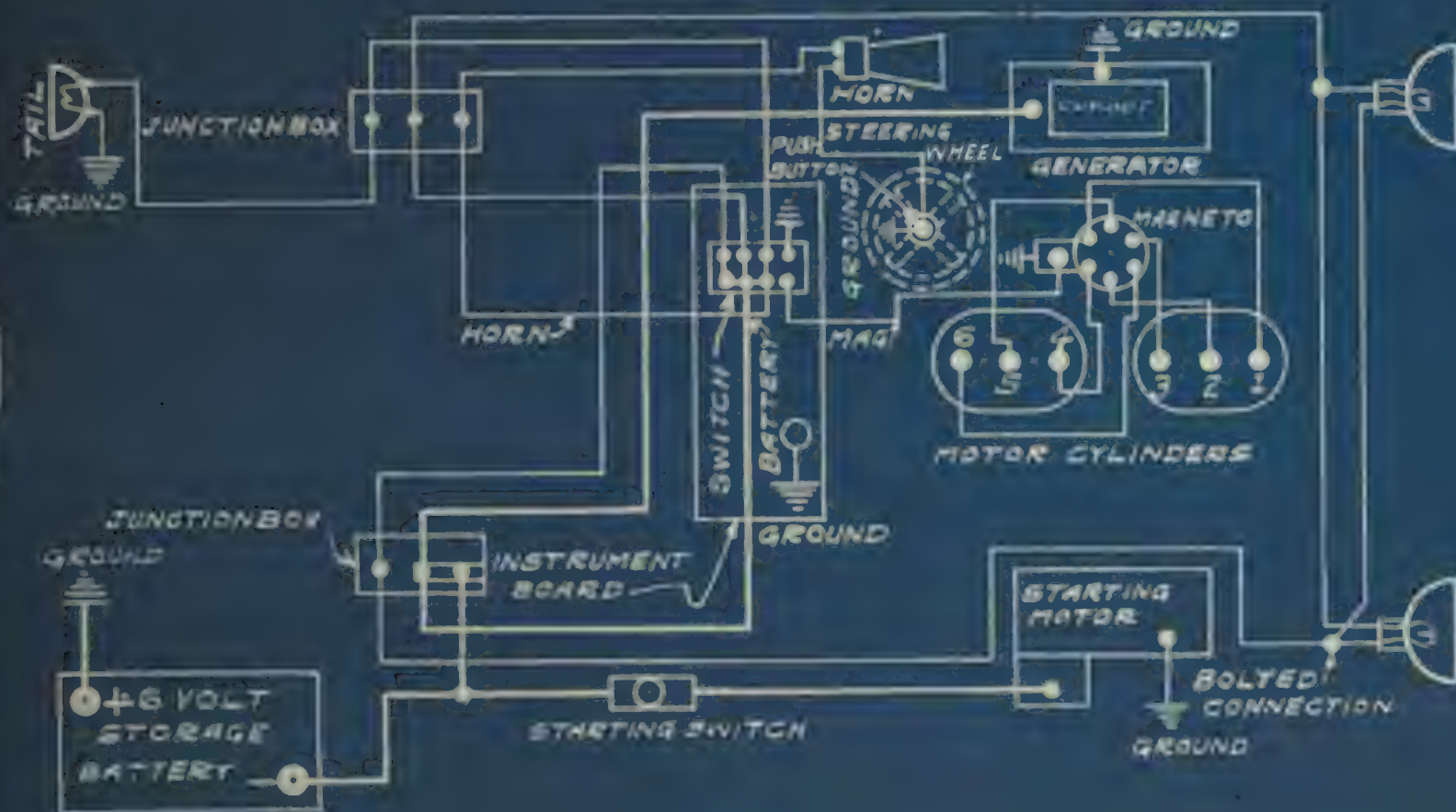
FROM MERS BP 2324



# CHANDLER 1917-1918-1919 "LIGHT WEIGHT SIX"

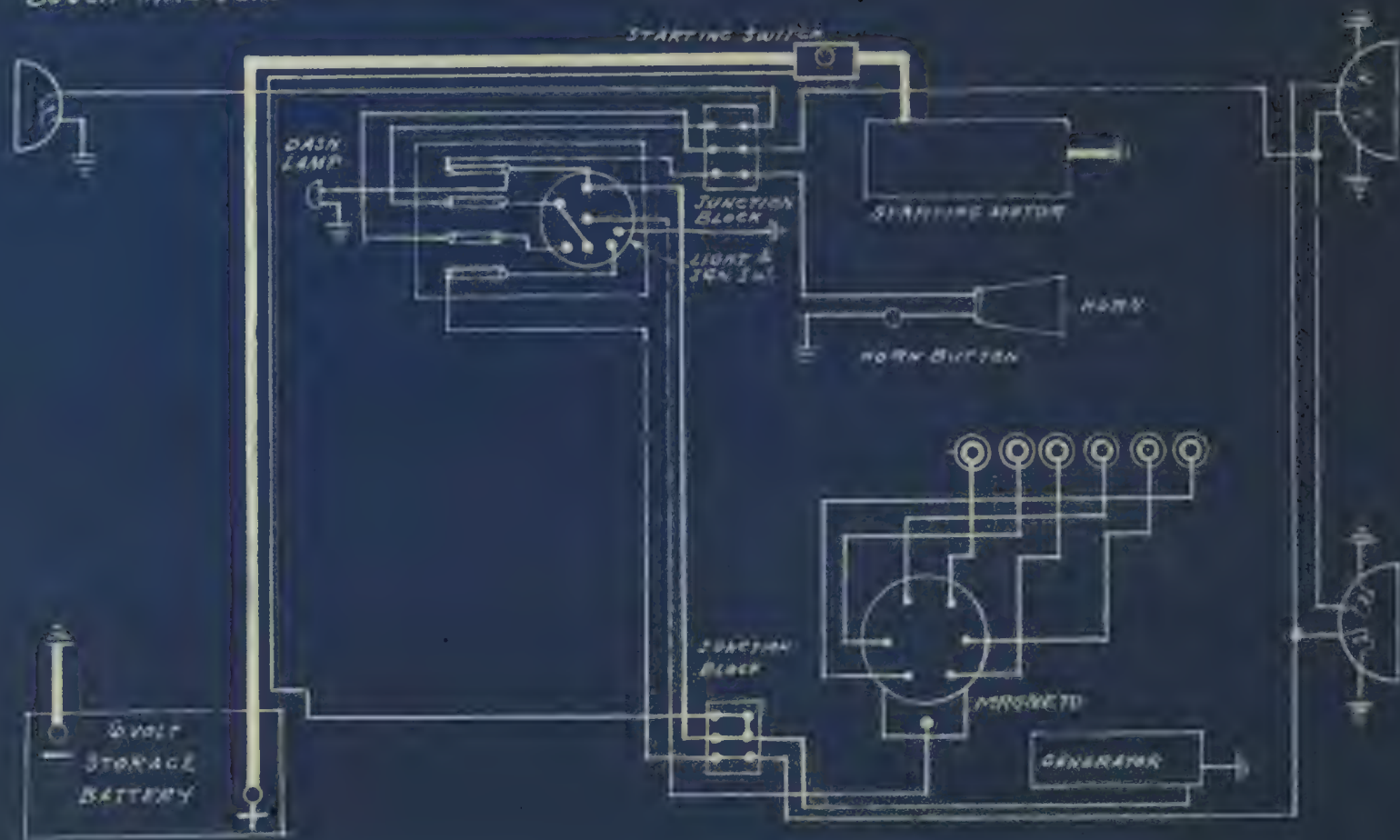
GRAY & DAVIS SYSTEM - BOSCH MAGNETO  
APPLIES TO CARS NUMBERED FROM 35001

FROM MFRS. B.P. 2489



CHANDLER 1920  
GRAY & DAVIS START. & LIGHT  
BOSCH MAG. IGN.

WIRE HARNESS, 30' 34" 00



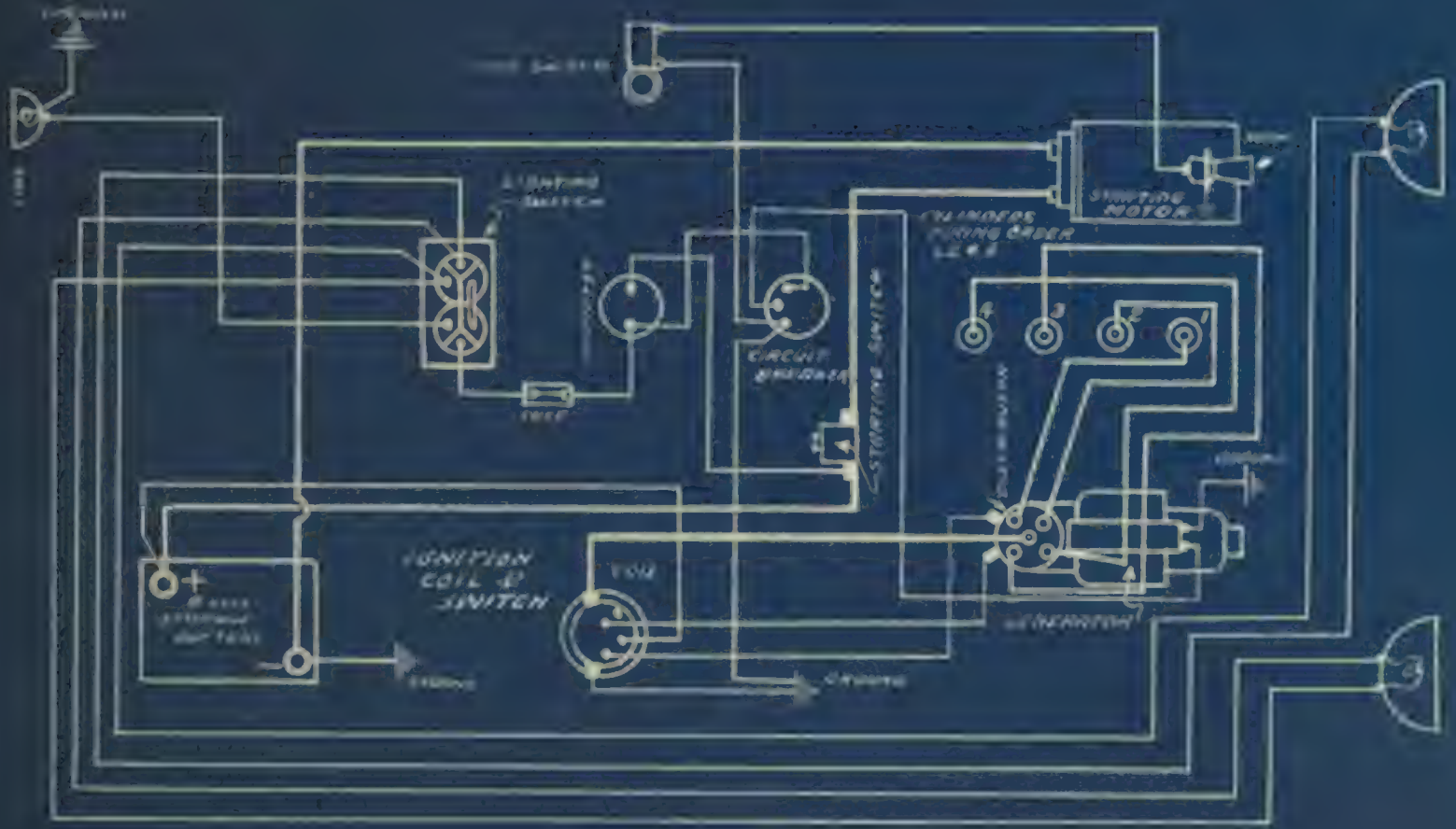


**CHEVROLET**  
AUTOLITE SYSTEM

1915

H2-H4-H3  
-EARLY MODELS-

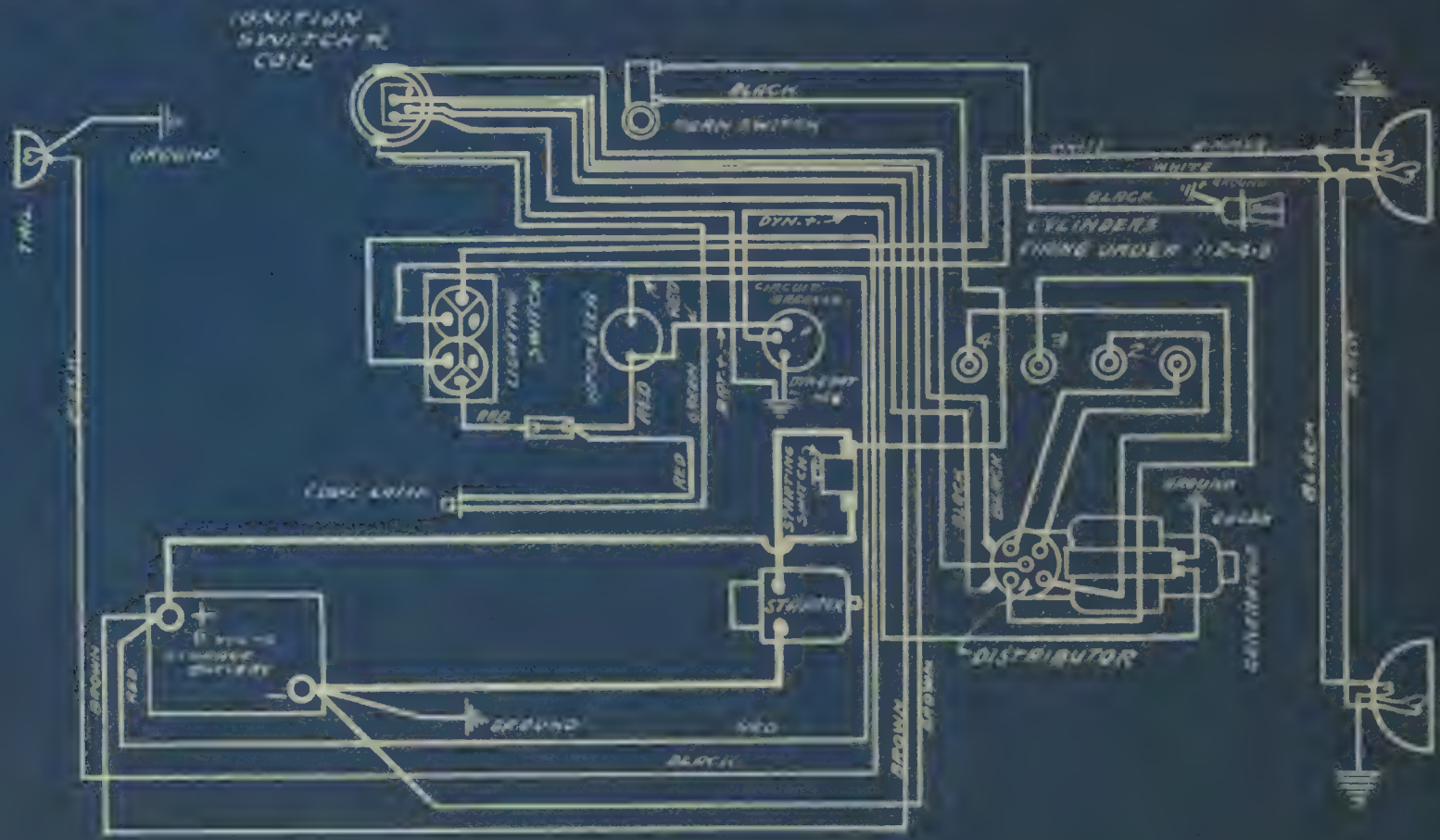
FROM B.P 22590-W



# CHEVROLET AUTOLITE SYSTEM

1915 H2-H3-H4  
(MID-SEASON)

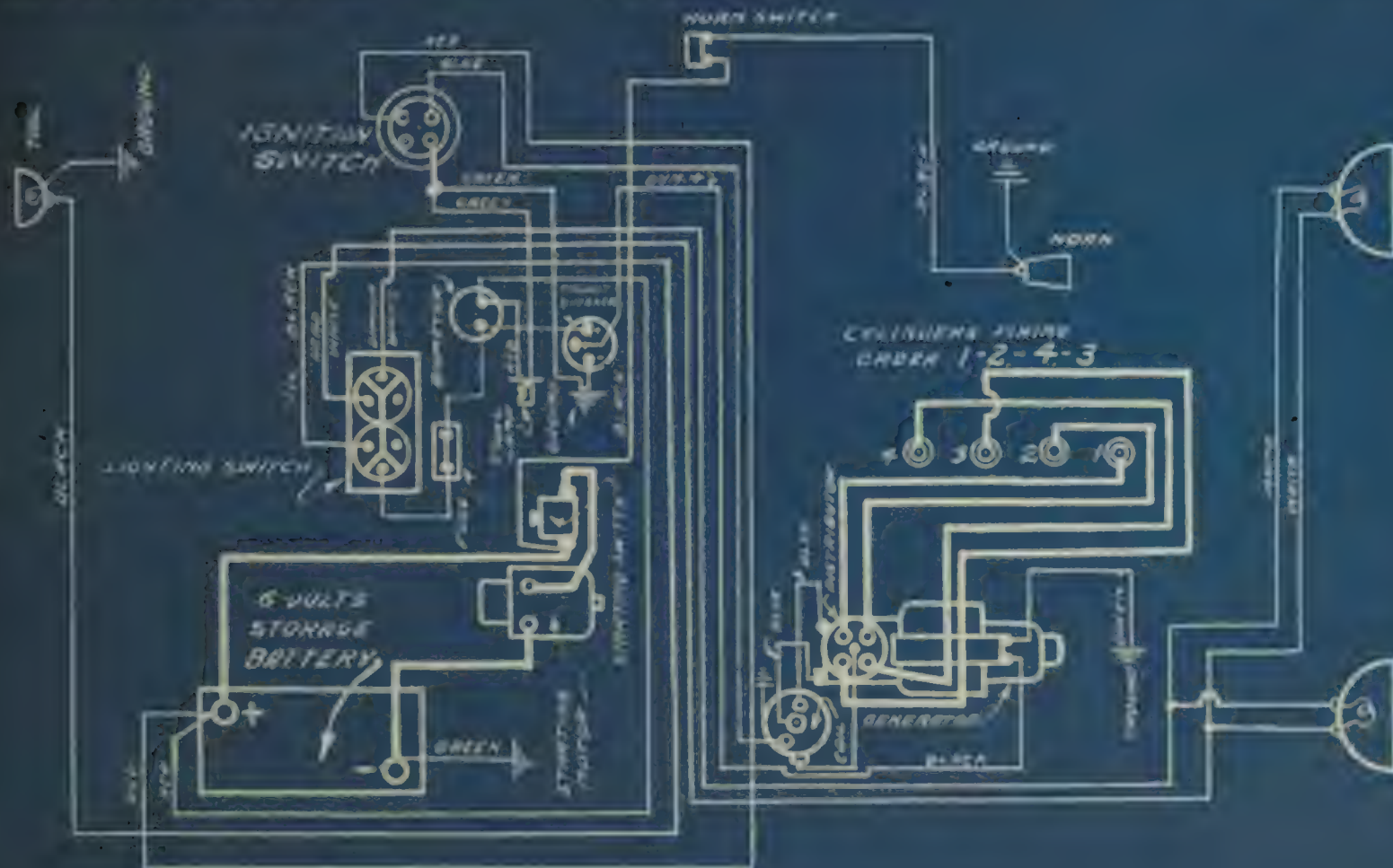
Wiring Diagram BR22805-5



# CHEVROLET 1915 AUTOLITE SYSTEM

H2-H3-H4  
(LATE MODELS)

BP 22816-B

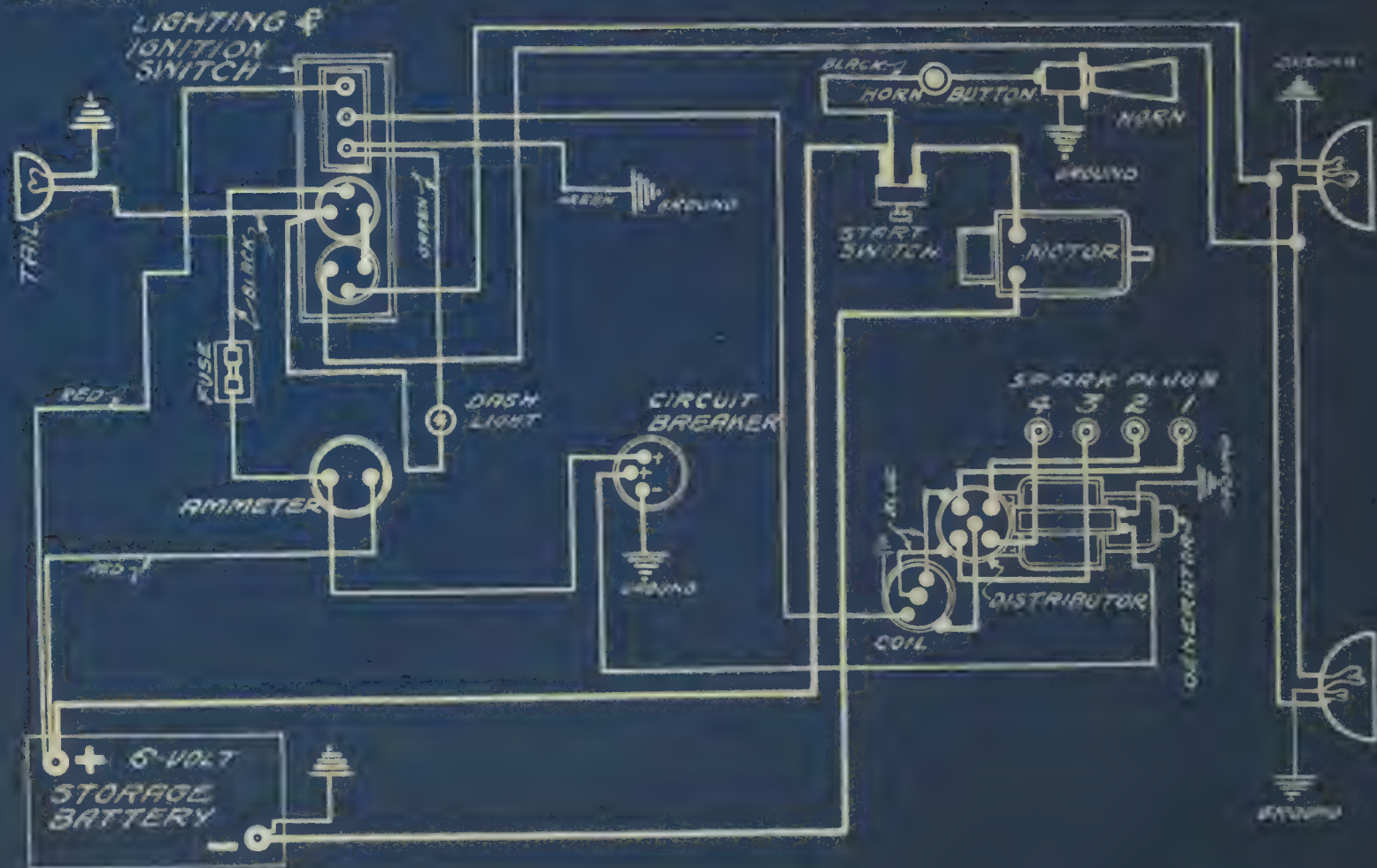




# CHEVROLET 1915-1916 AUTOLITE SYSTEM

H2½-H3-H4

FROM MEPS BP 23051-B



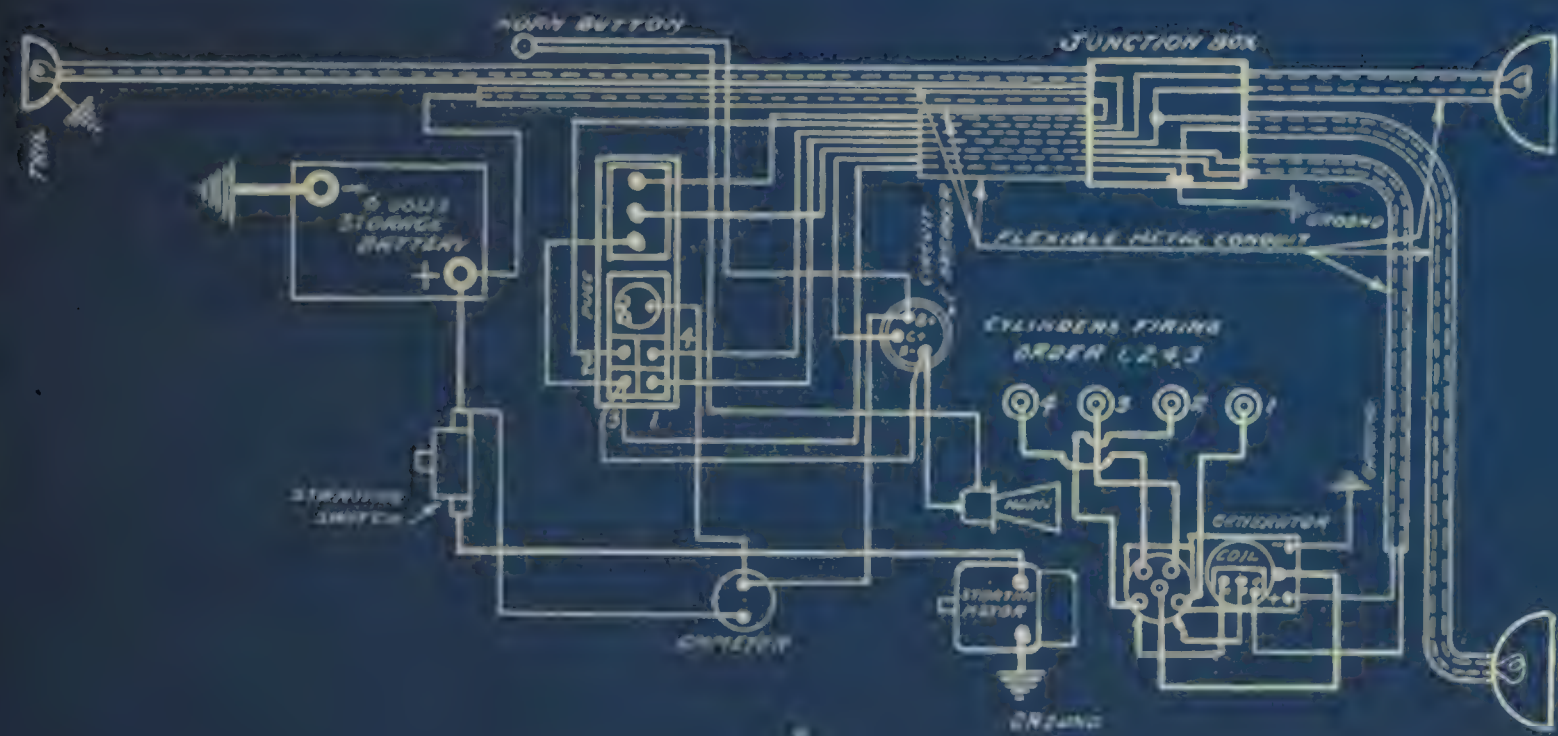
AUTOMOTIVE WIRING CO.

# CHEVROLET 1916-17 "490"

WIRE BP H368

## AUTOLITE SYSTEM

FOR CARS EQUIPPED WITH ONE CABLE FROM STARTING MOTOR TO BATTERY



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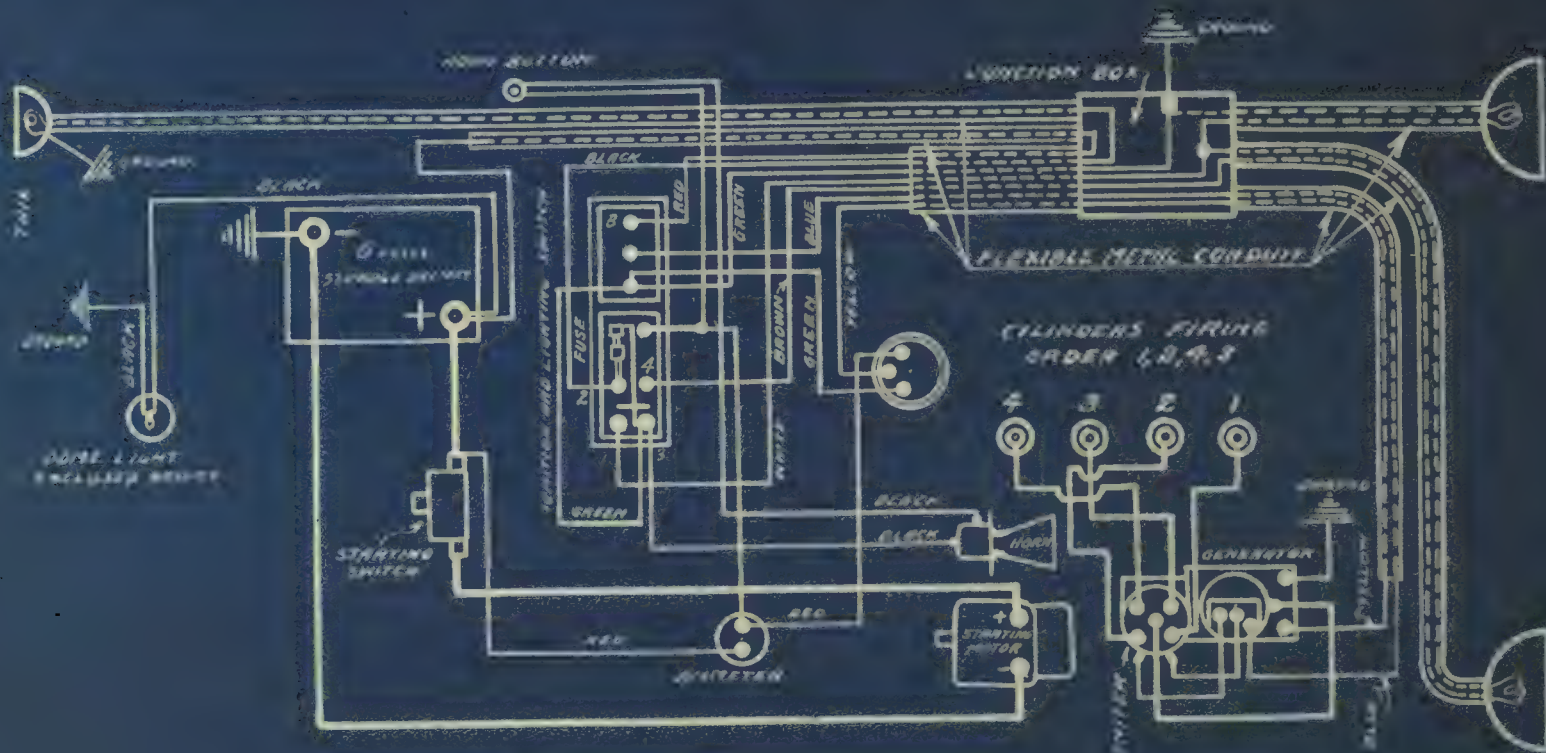
# CHEVROLET 1916-1917

## AUTOLITE SYSTEM

"490"

FORM BP H671

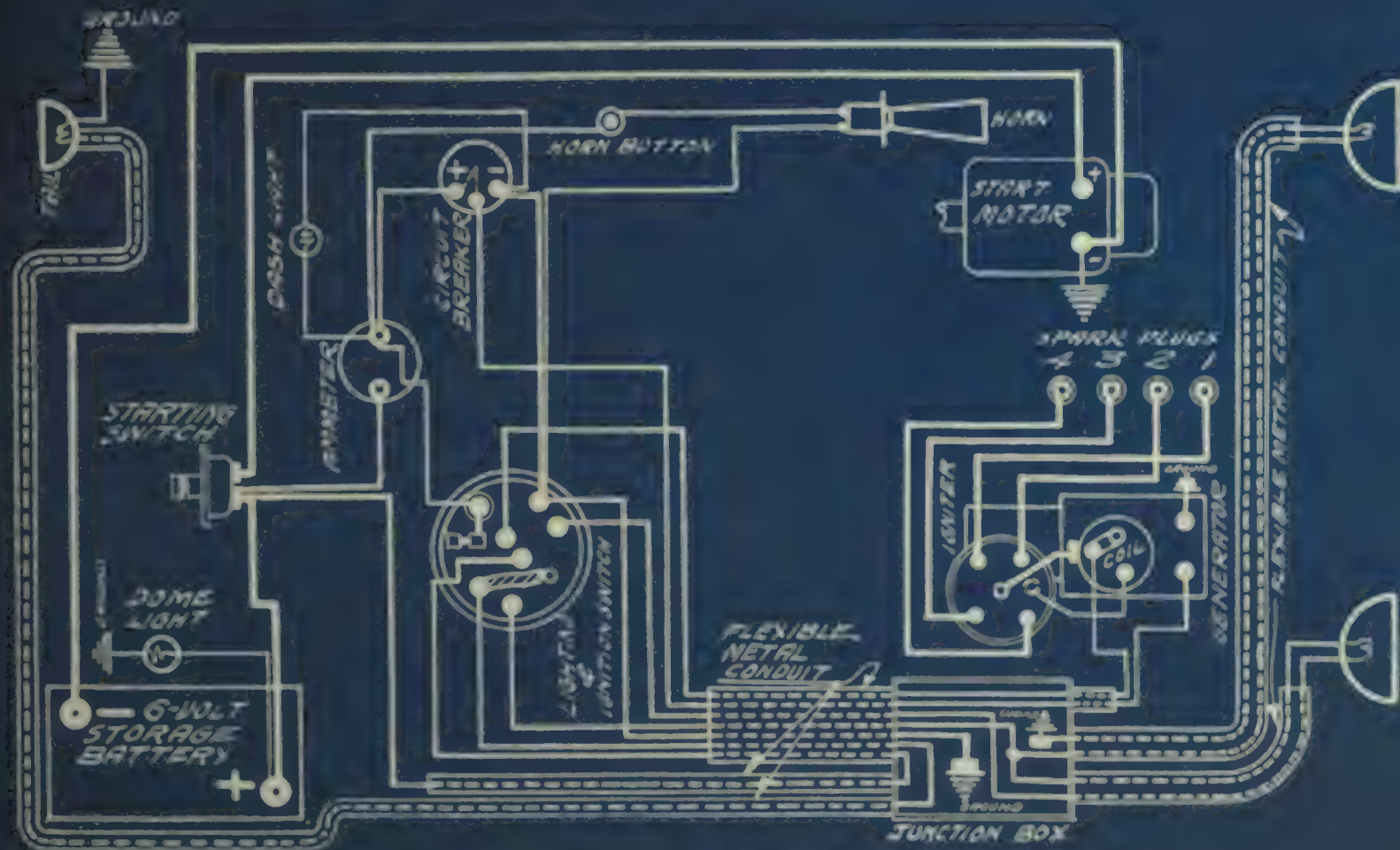
FOR CARS EQUIPPED WITH TWO CABLES FROM STARTING MOTOR TO BATTERY





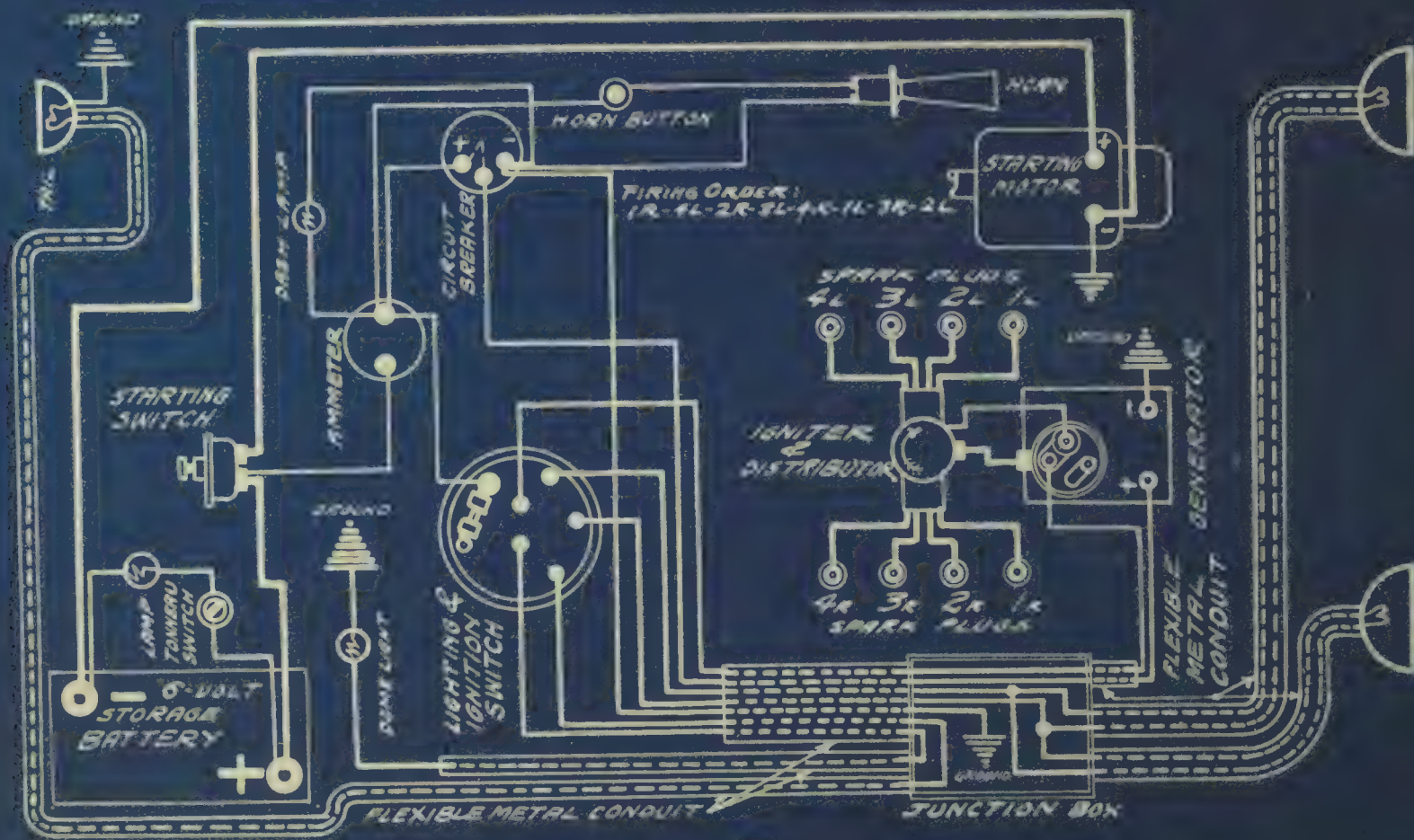
# CHEVROLET 1917-1918 "F-2" & "F-5" AUTOLITE SYSTEM

FROM MFRS. BP 40602



# CHEVROLET 1918 D-4 & D5 AUTOLITE SYSTEM

FROM MEMS BP 42419



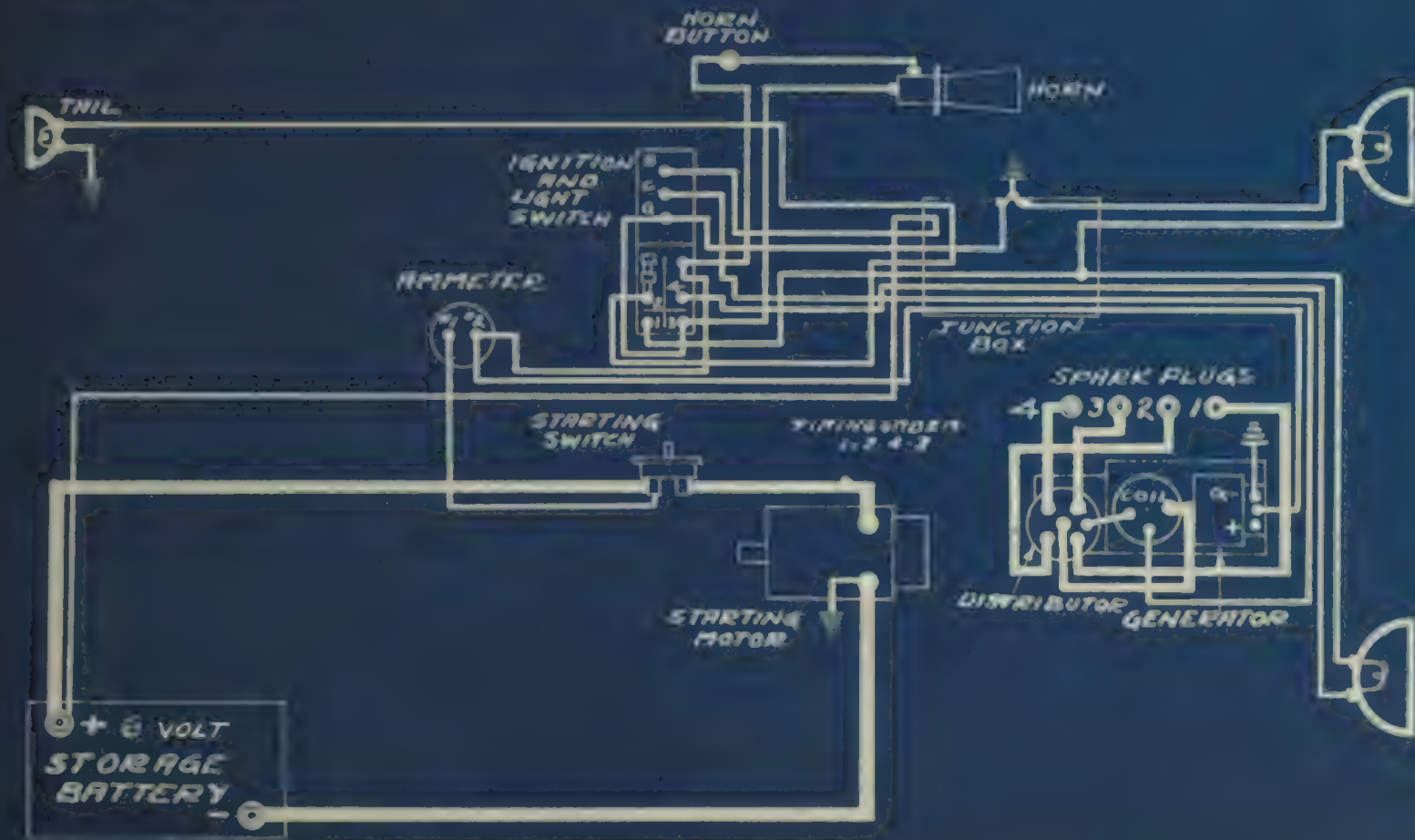


# CHEVROLET MODEL 490 1919

## AUTO LITE STARTING AND LIGHTING

### REMY IGNITION

FROM REFS. PRINT.



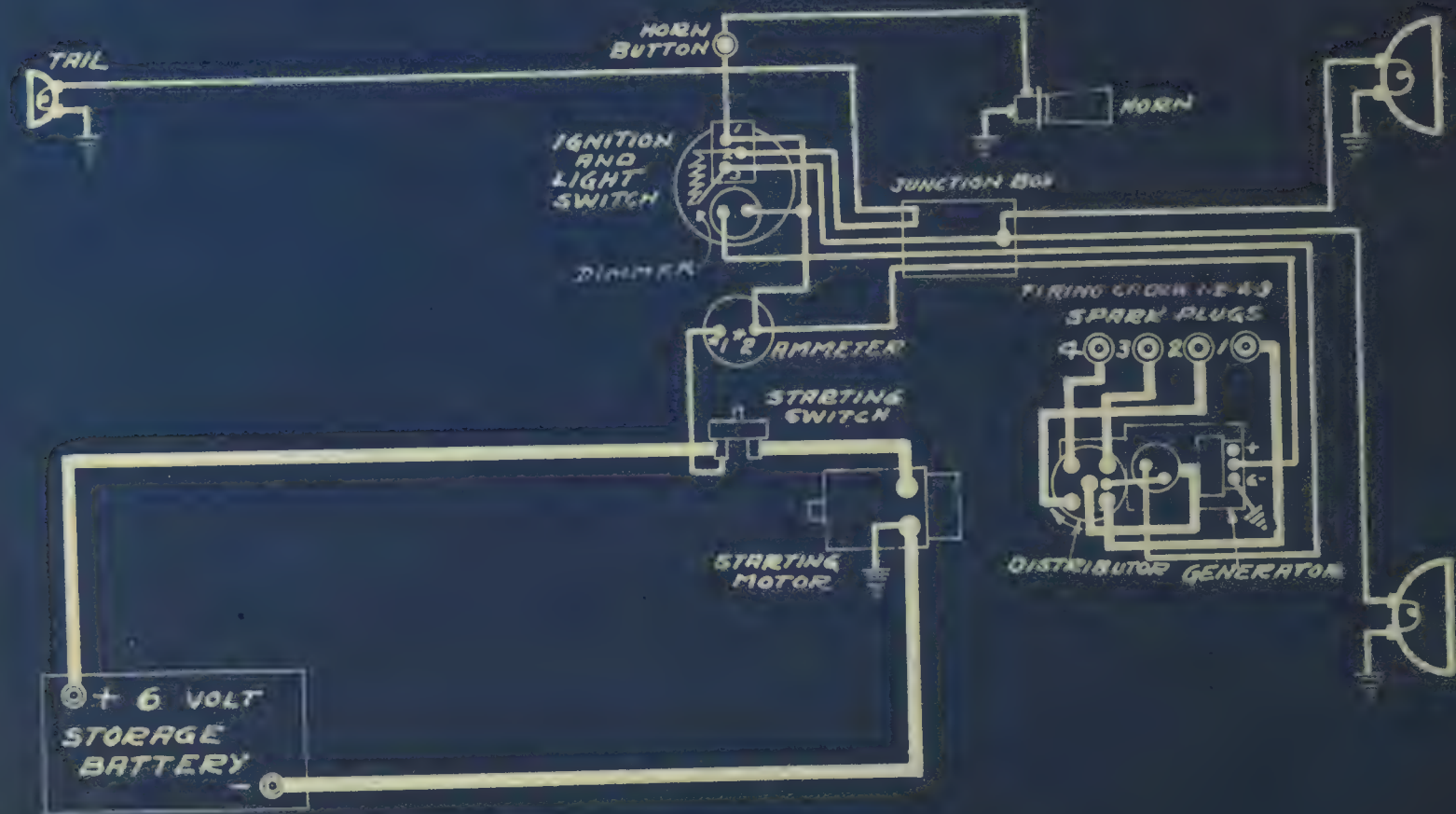


# CHEVROLET MODEL 490 1920

## AUTO LITE STARTING AND LIGHTING

### REMY IGNITION

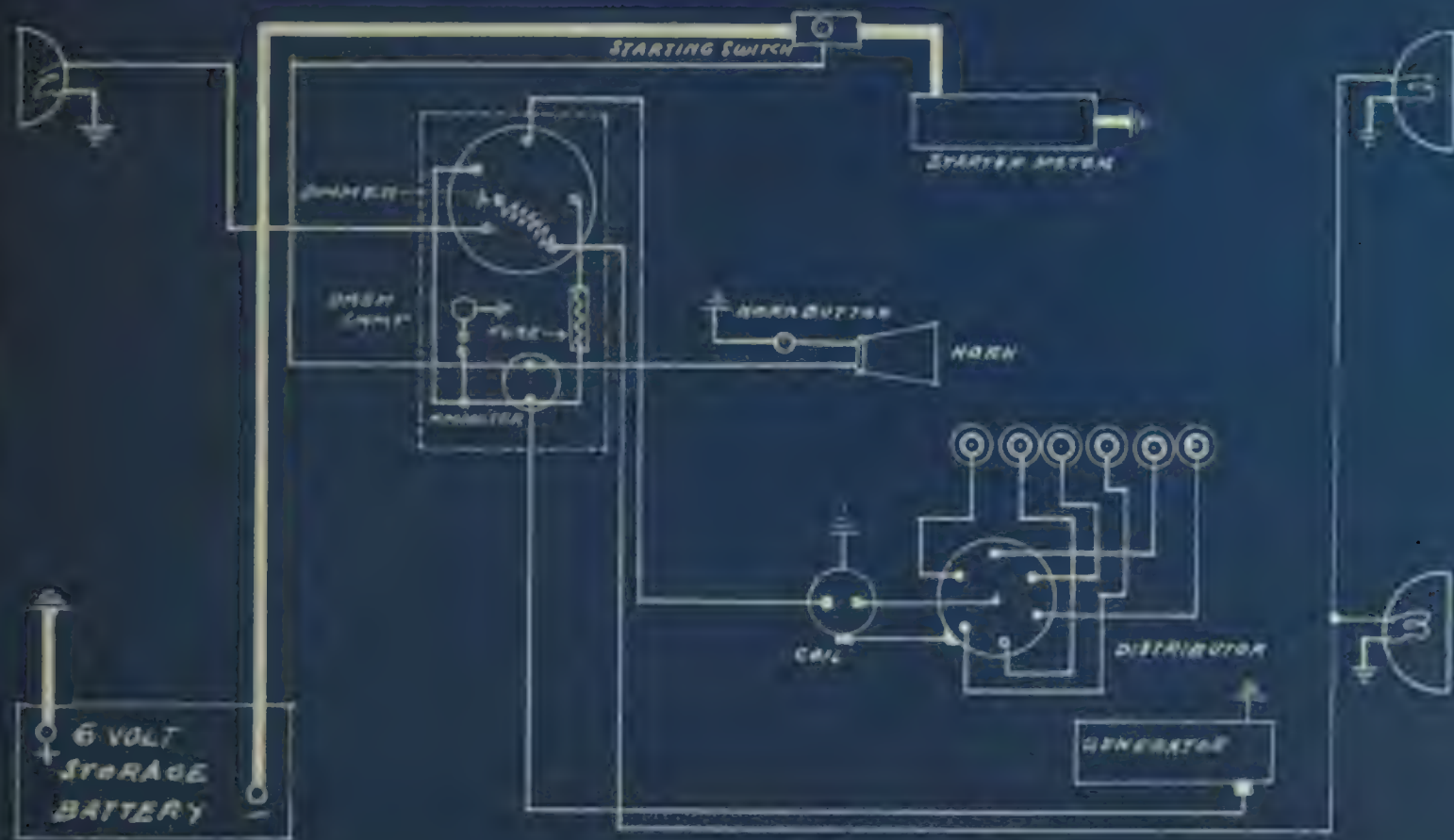
FROM MEMO PRINT



# CLEVELAND MODEL 40 1919-1920

## GRAY & DAVIS SYSTEM

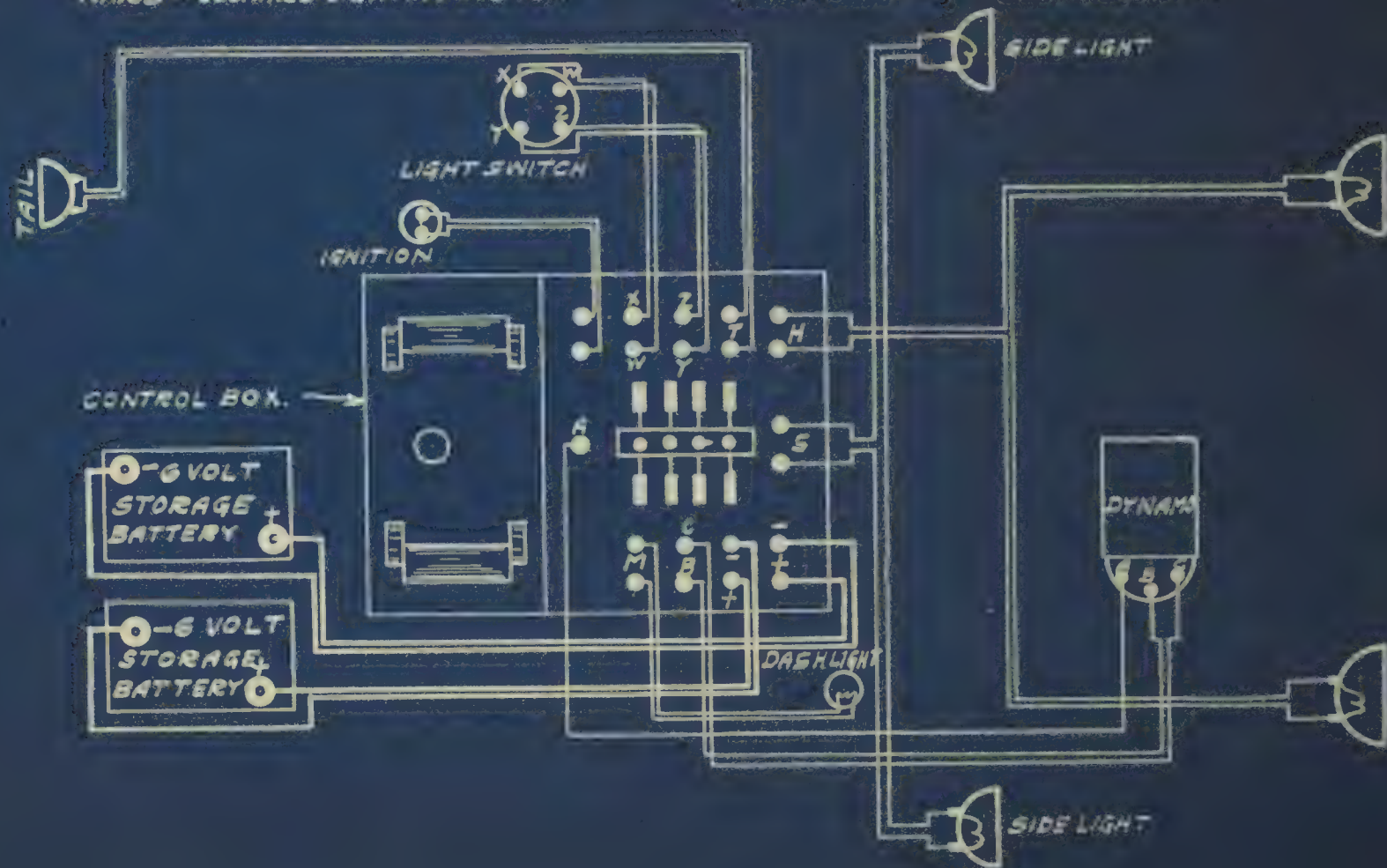
FROM HALL'S P. 453.



# COLE 1912 30-40

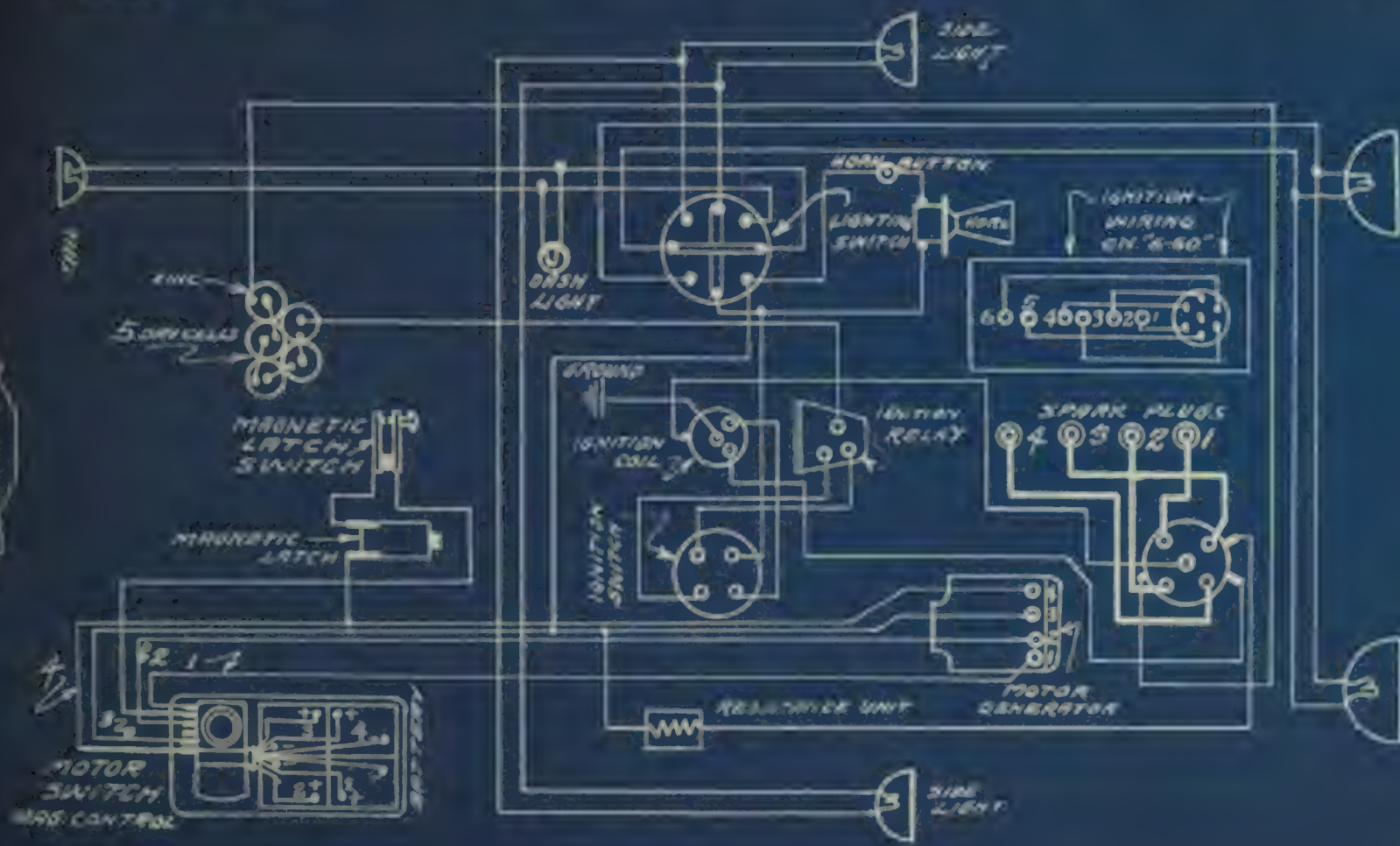
WARD - LEONARD LIGHTING SYSTEM

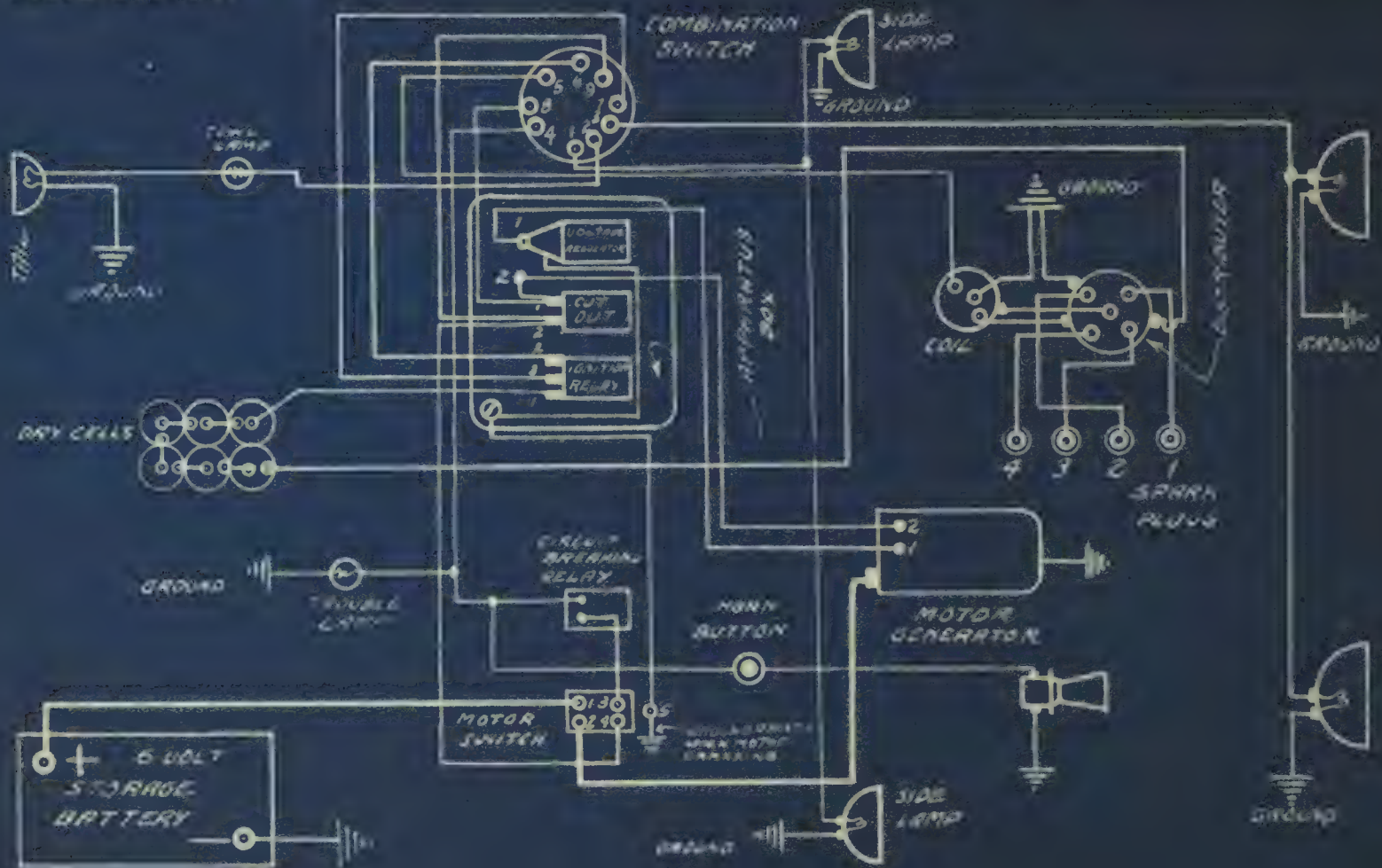
FROM WARD - LEONARD BULLETIN



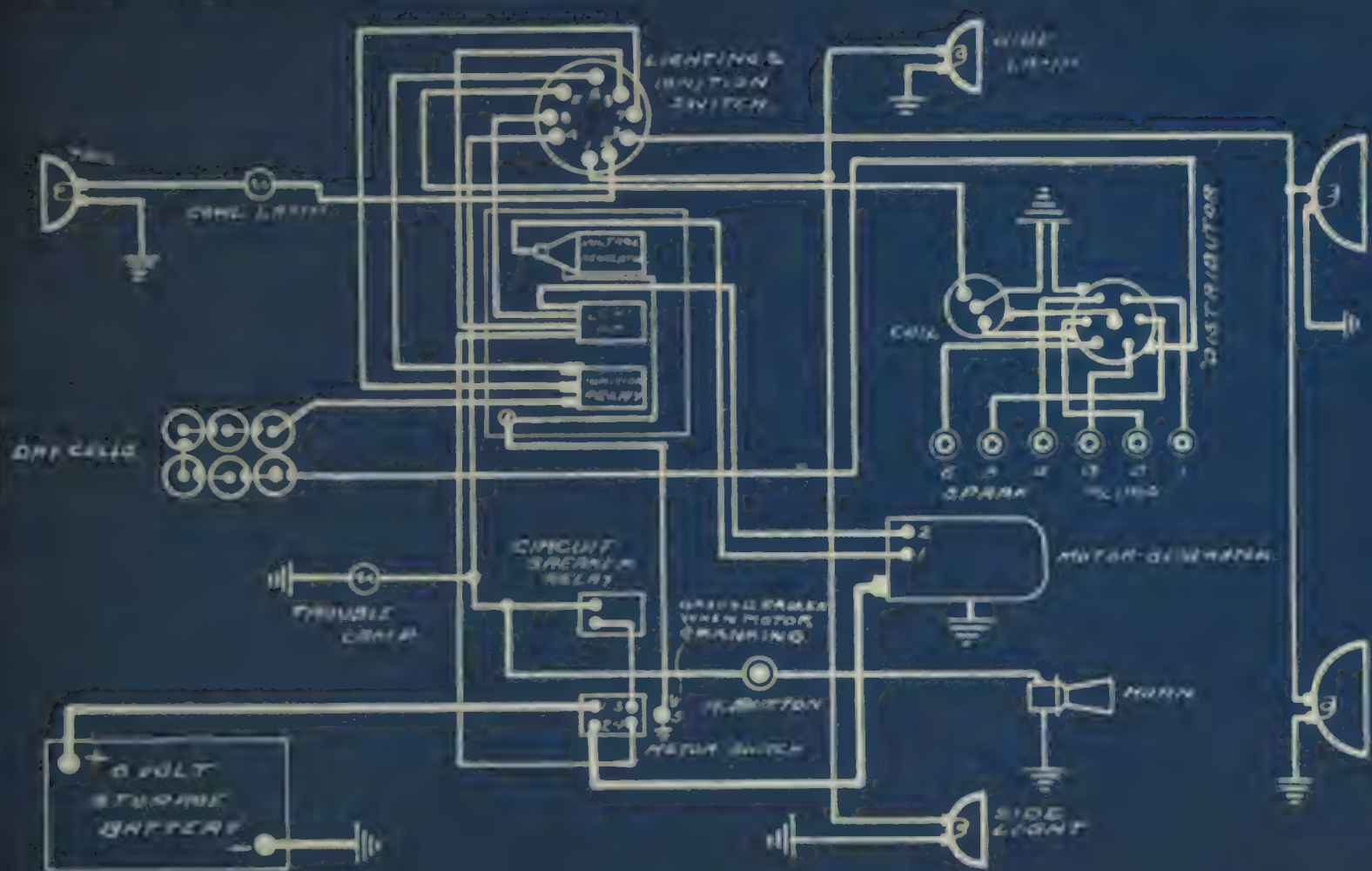
AUTOMOTIVE PAINTING CO.  
CHICAGO, ILL.







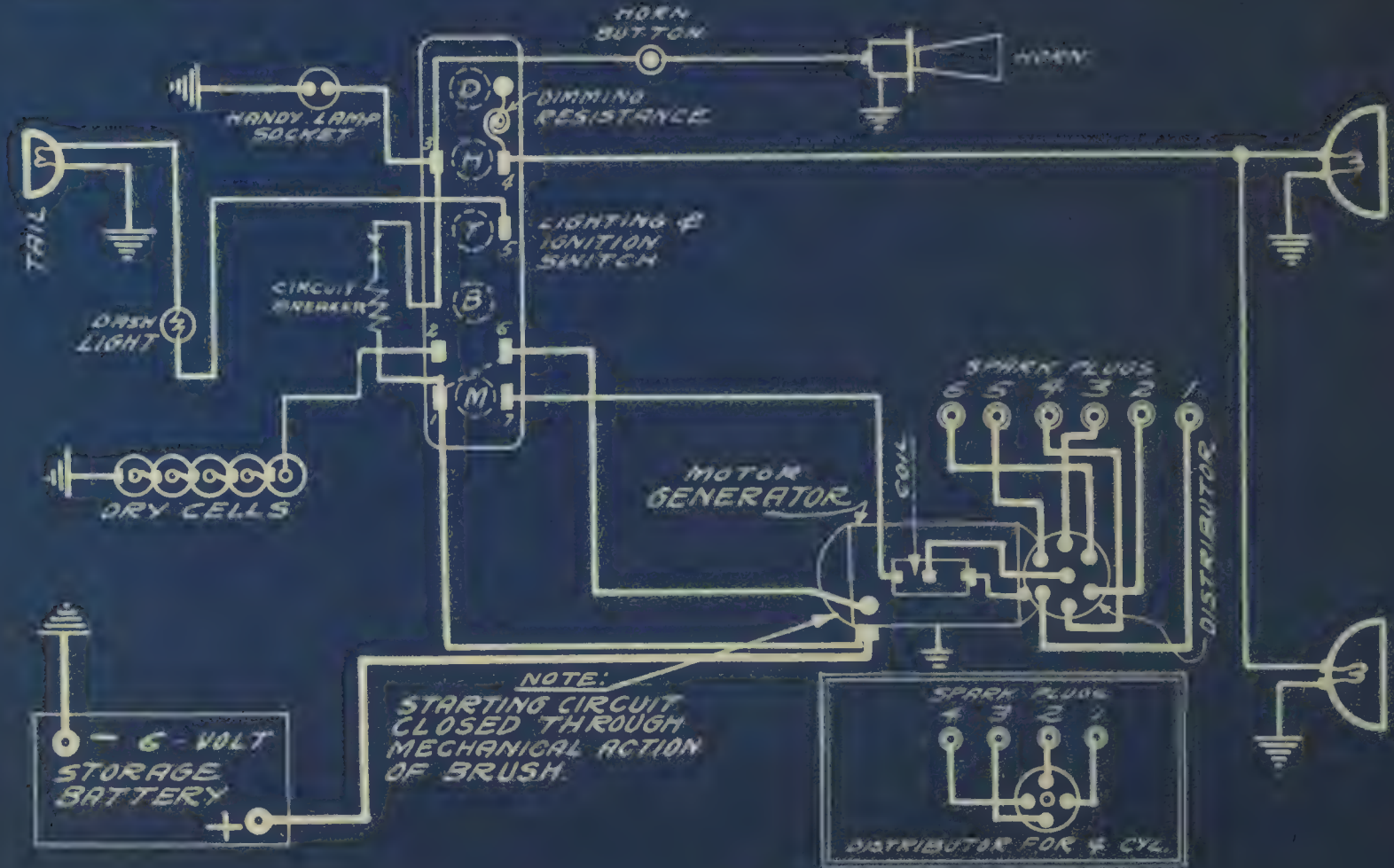
CONTROLLED BY  
AUTOMATIC IGNITION CO.  
MILWAUKEE, WIS.





# COLE 1915 "4-40" & 1916 "6-66" DELCO SYSTEM

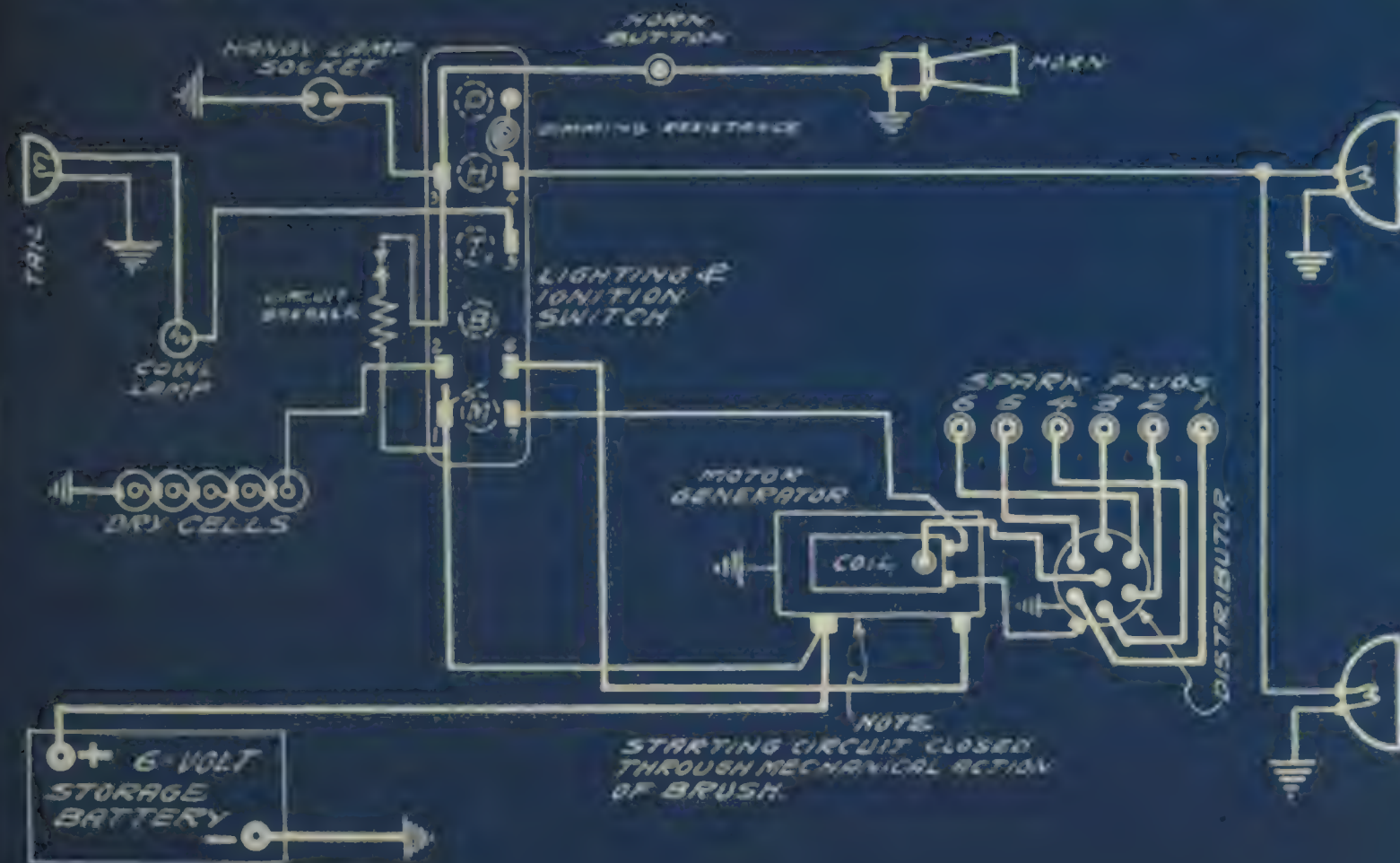
FROM DELCO MANUAL



# COLE 1915 "6-50"

DELCO SYSTEM

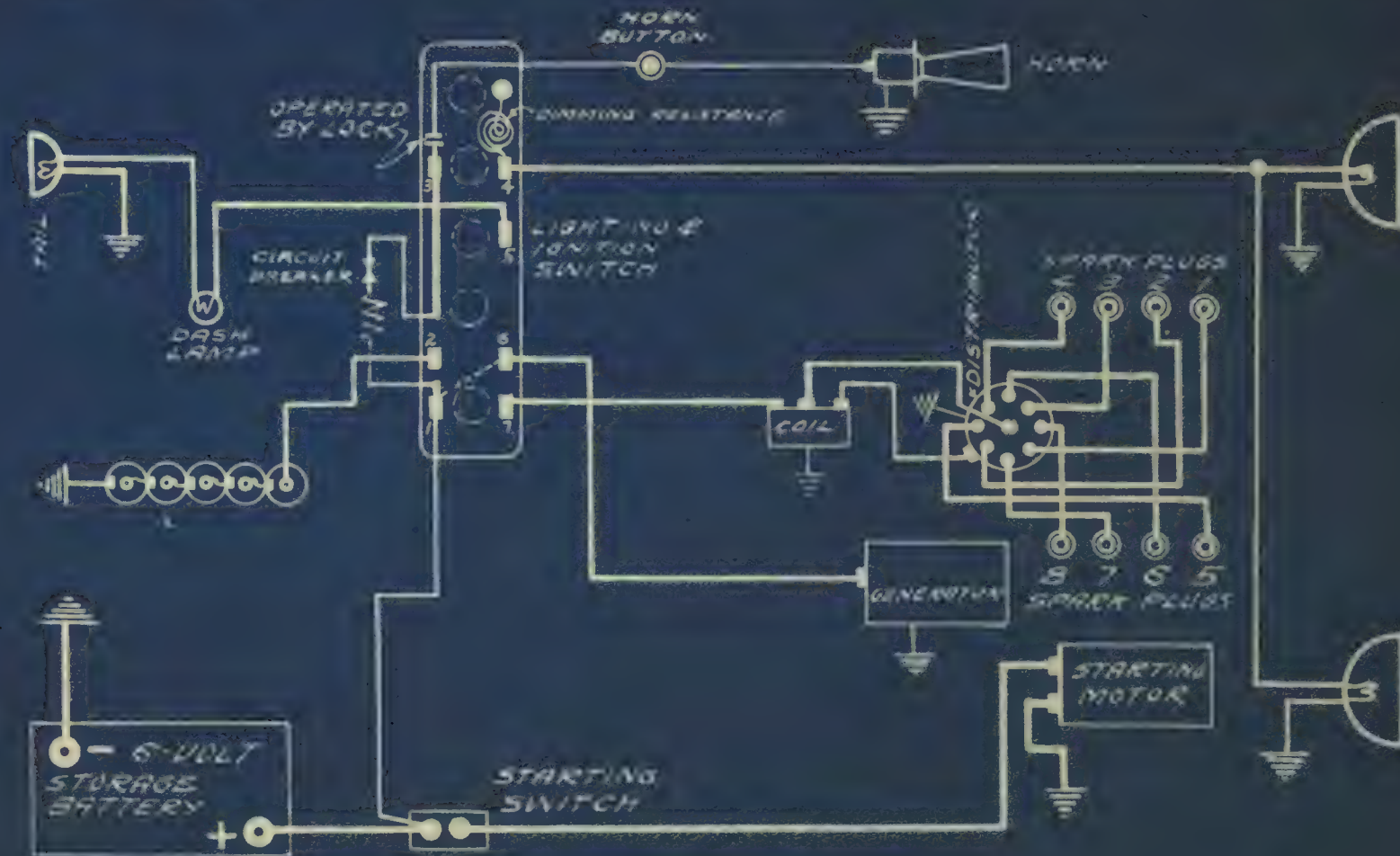
FROM DELCO MANUAL



COLE 1916  
DELCO SYSTEM

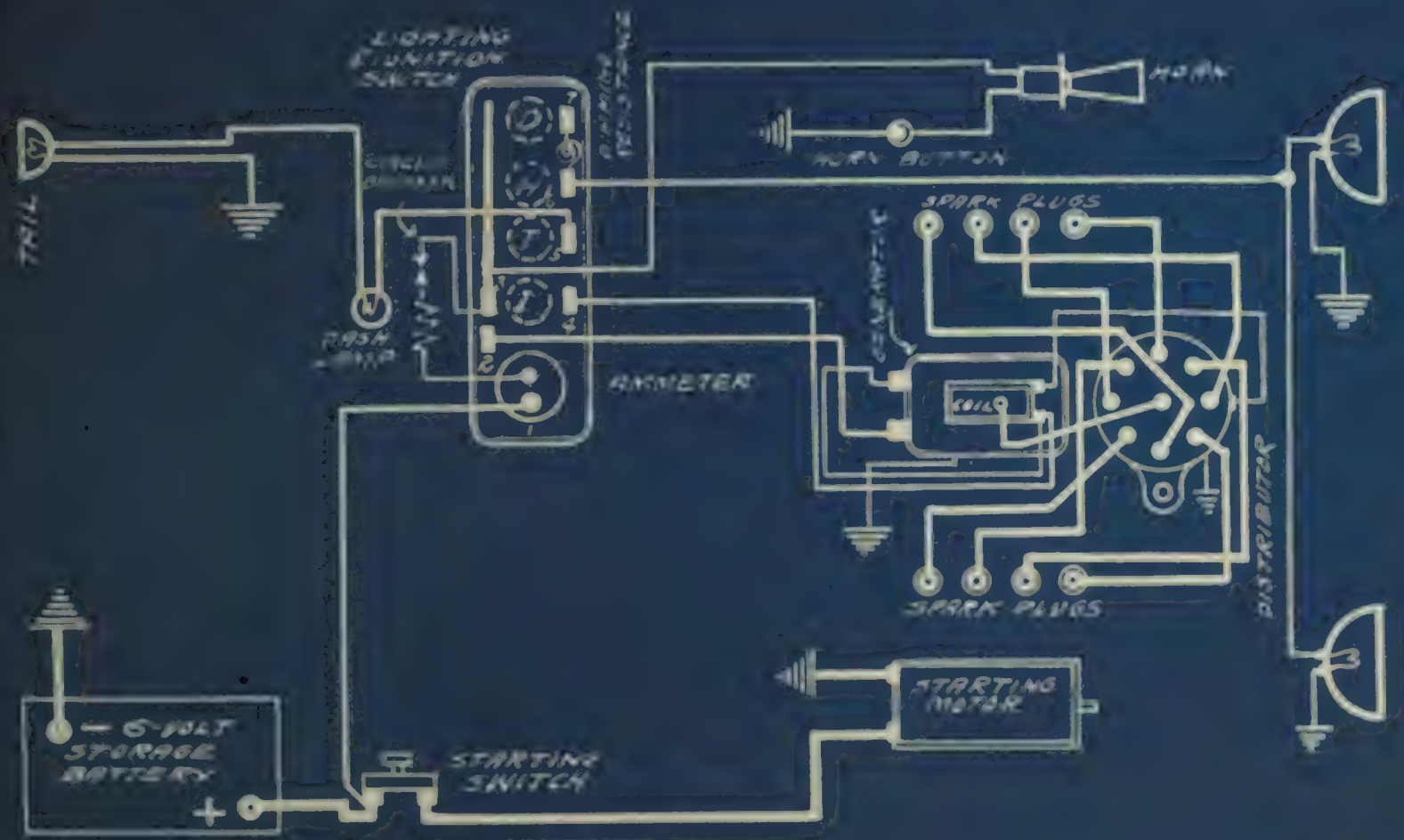
"8-50"

FROM DELCO MANUAL



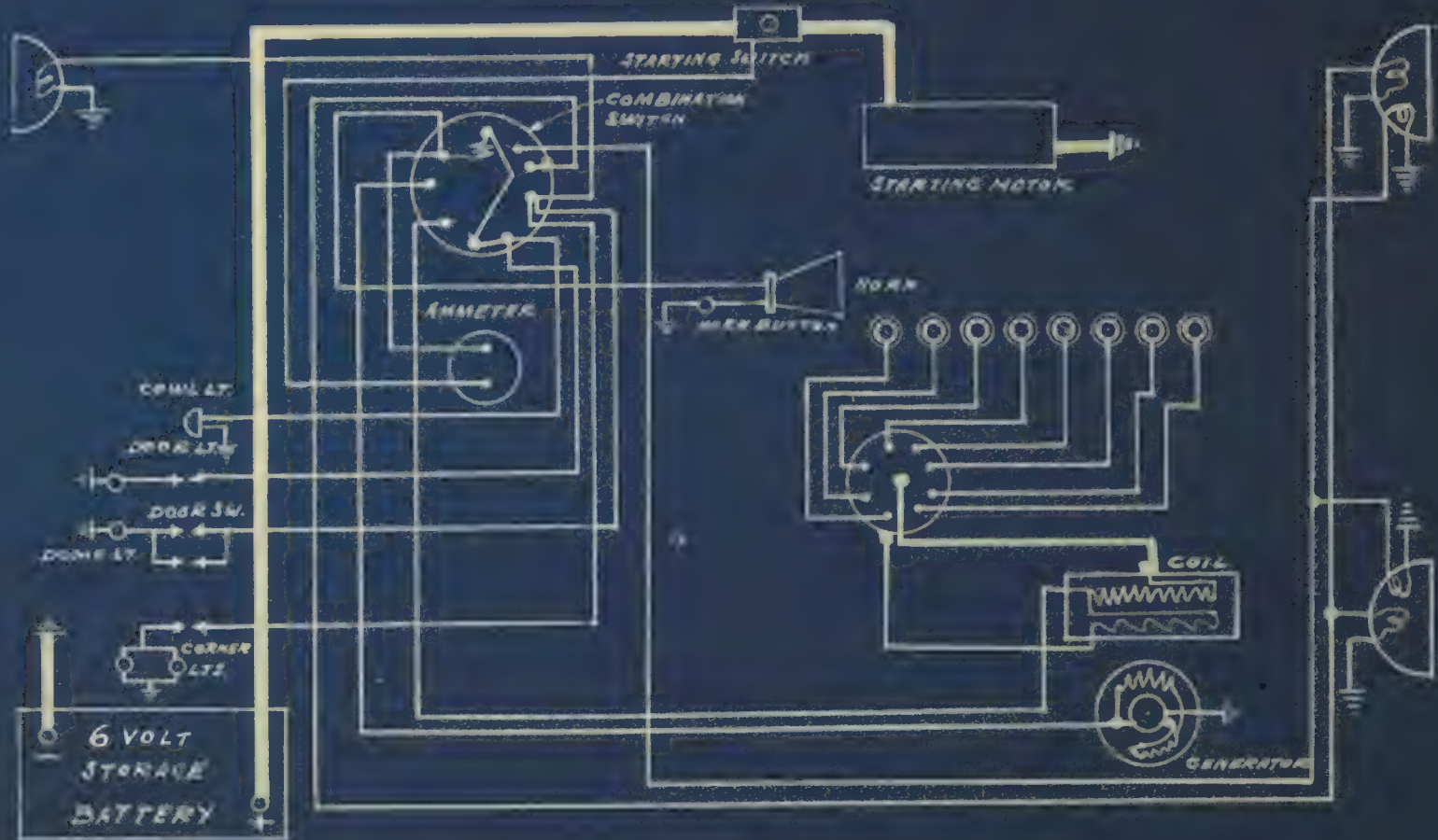


COLE 1917-18 "8-60" - 1919 EARLY MODELS - FROM DELCO MANUAL  
DELCO SYSTEM



# COLE AERO EIGHT "870" 1919-1920 DELCO SYSTEM

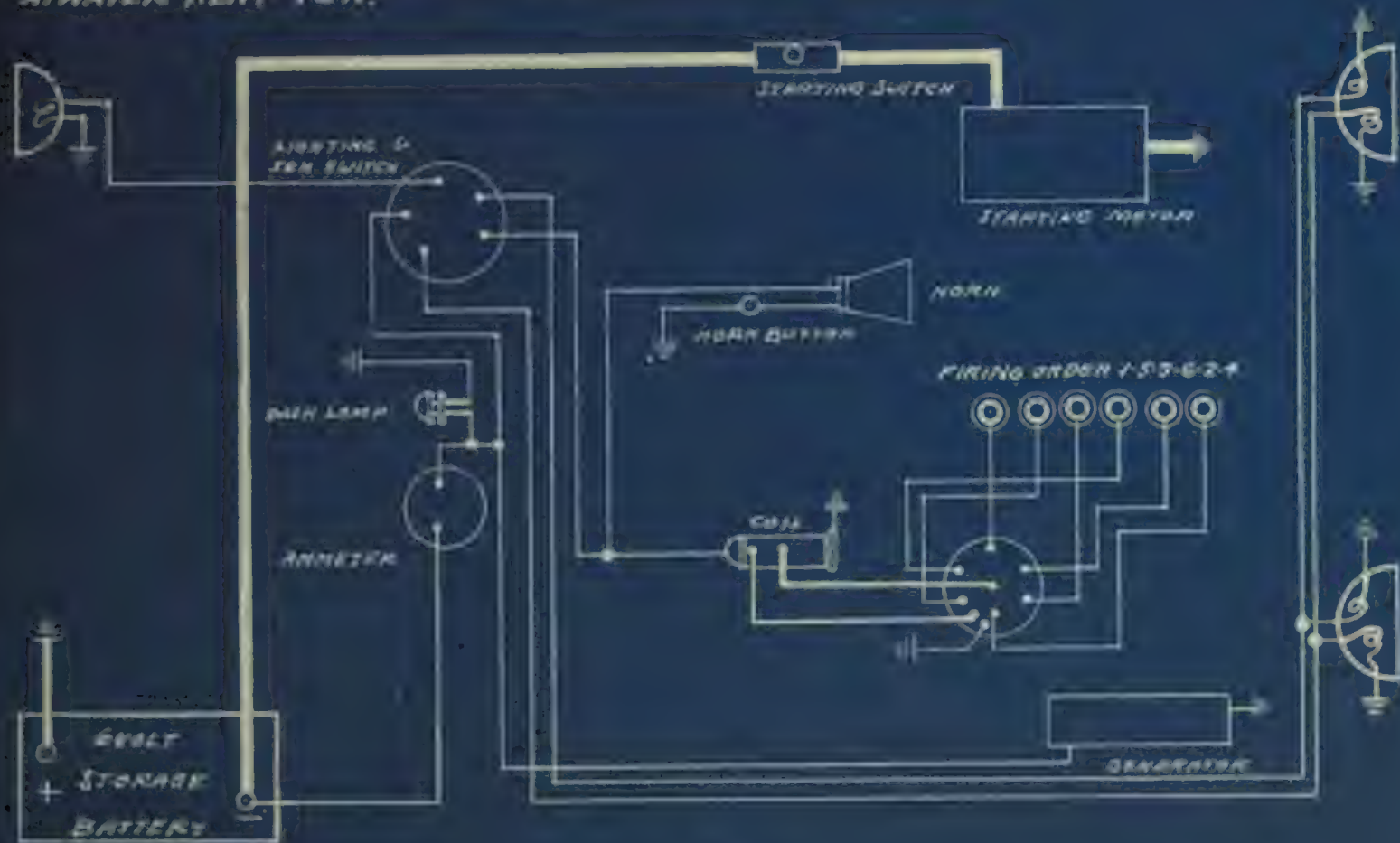
FROM MFRS. B. H. 7422



**COLUMBIA 1917-1918 ALL MODELS**  
**WARD-LEONARD STARTING & LTD.**  
**ATWATER KENT 10 N.**

FROM WHEELER 192.

Automotive Publications Co.  
 Chicago, U.S.A.

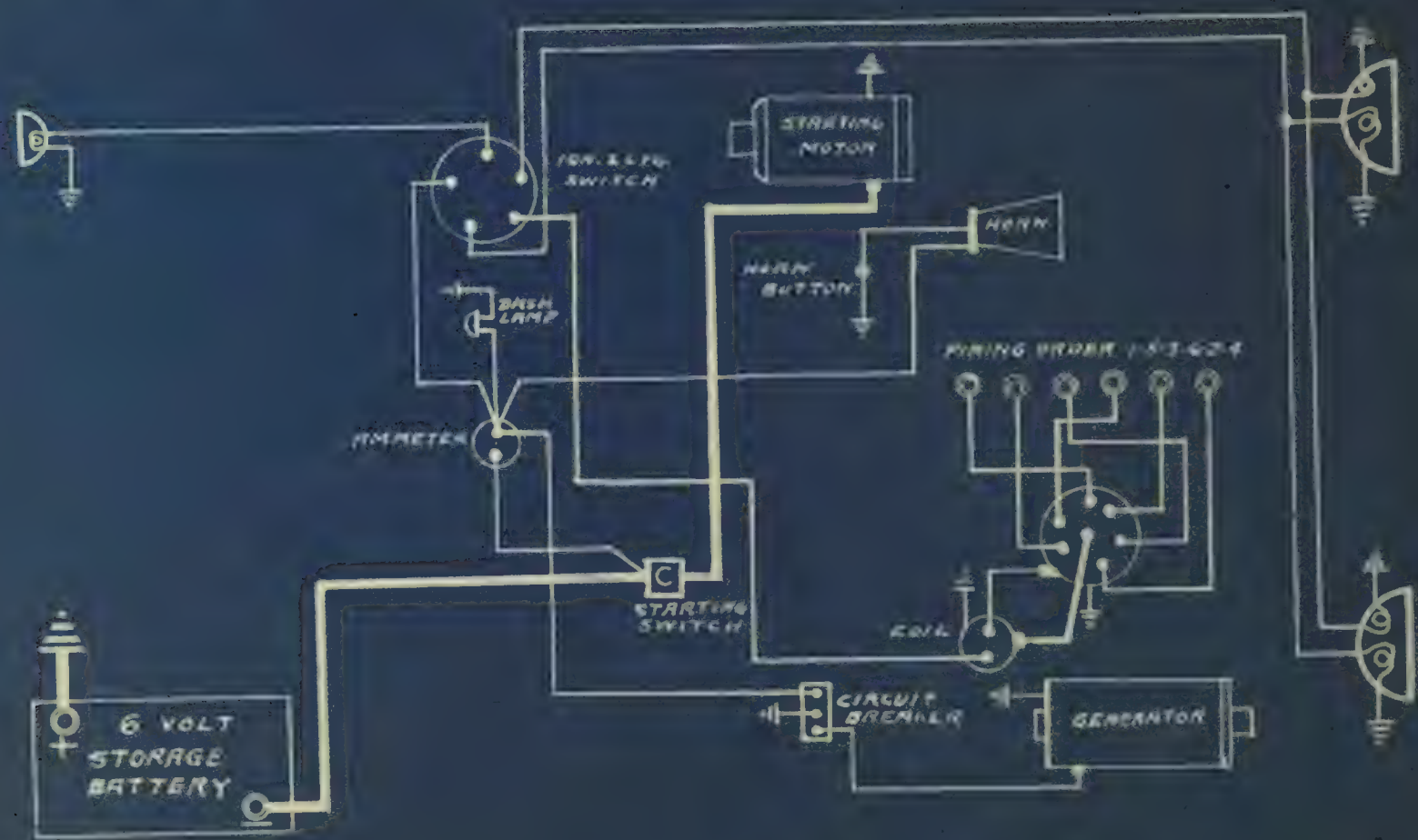




# COLUMBIA SERIES 7-W. 1919-1920

AUTO-LITE SYSTEM  
CANN CONNECTION

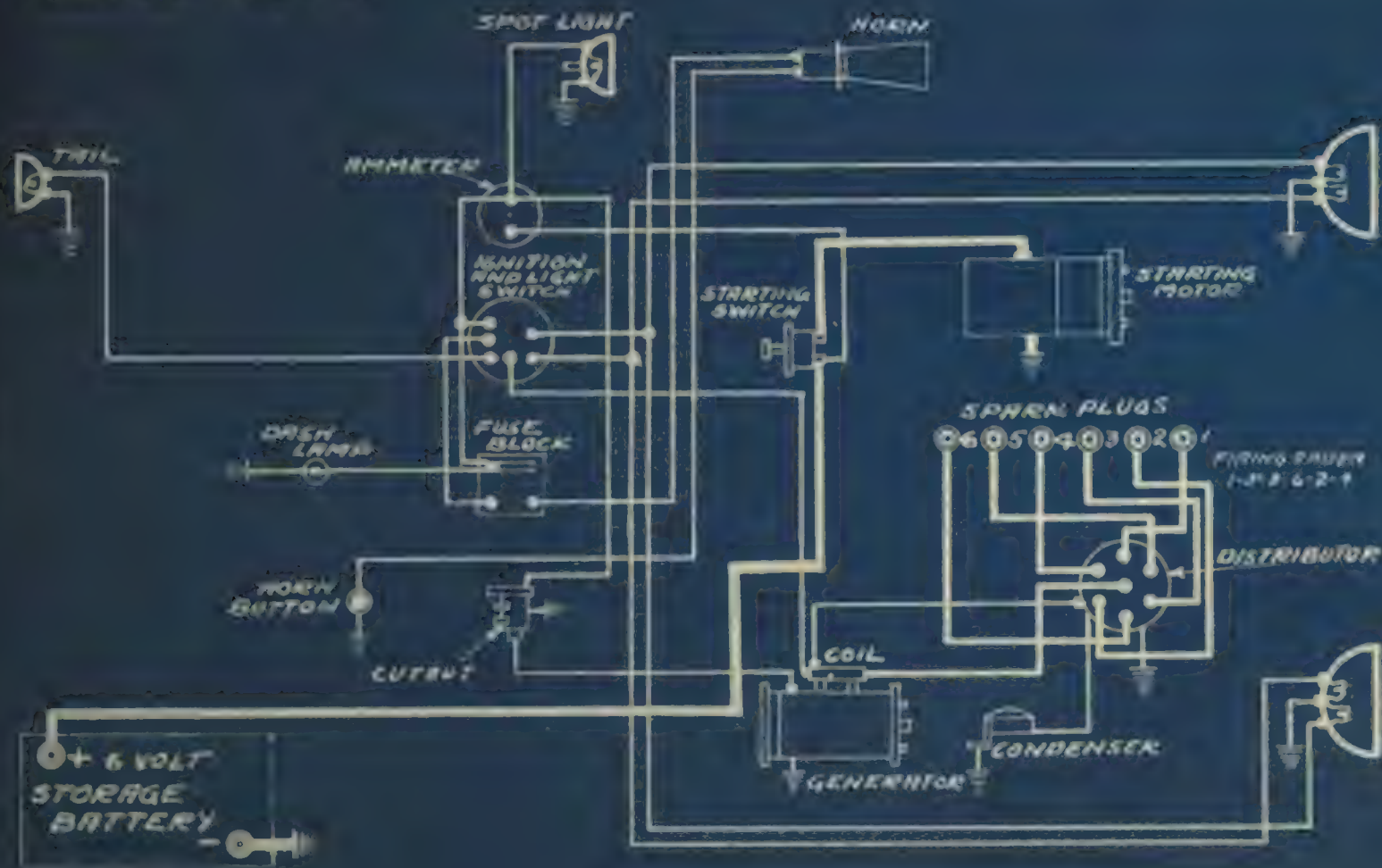
Illustration of the system



# COMET MODEL C-53 1920

WAGNER SYSTEM

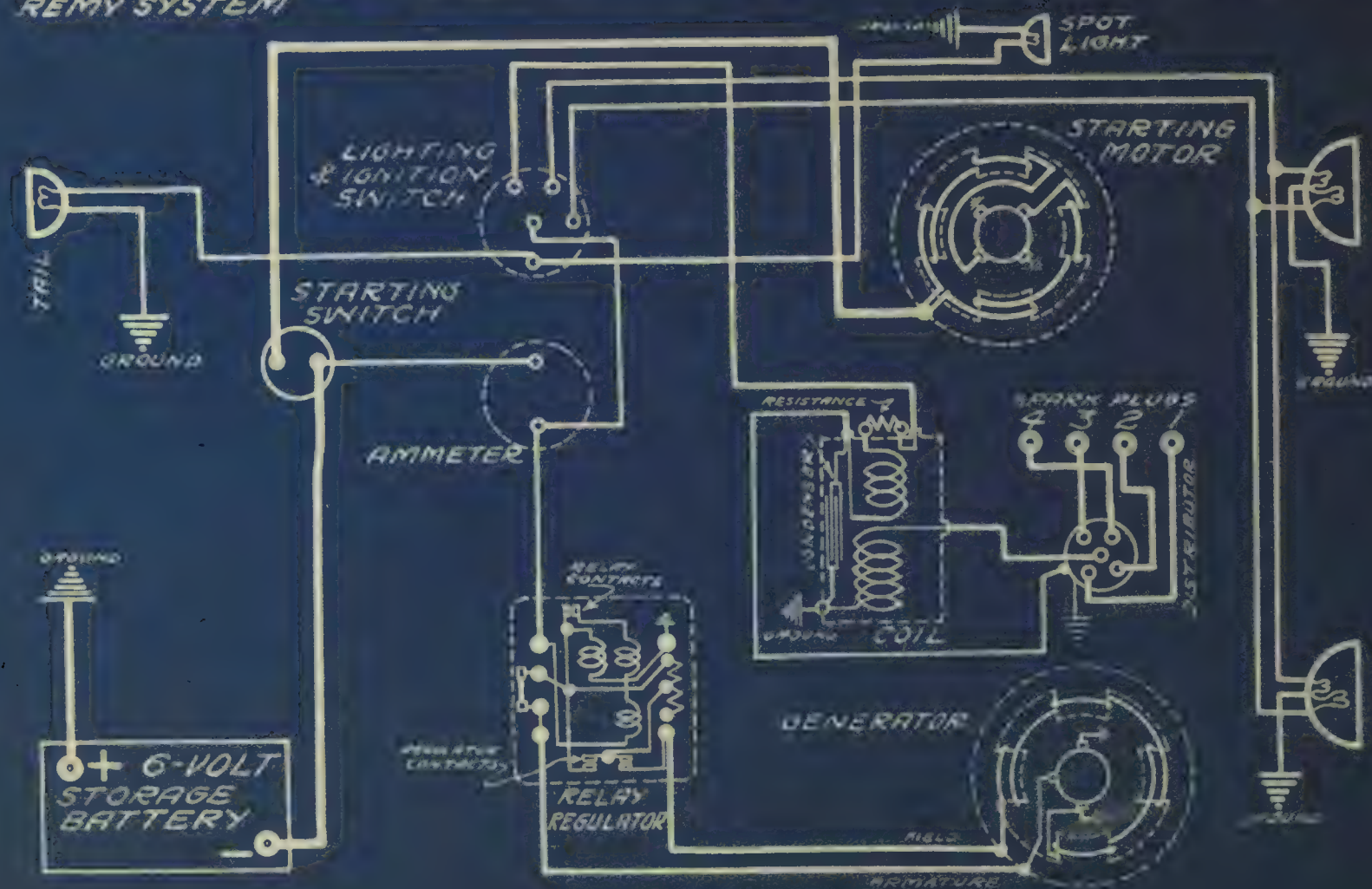
WAGNER PAPER DRAWING NO. 3084



# COMMERCE TRUCK REMY SYSTEM

"E"

FROM REMY MANUAL

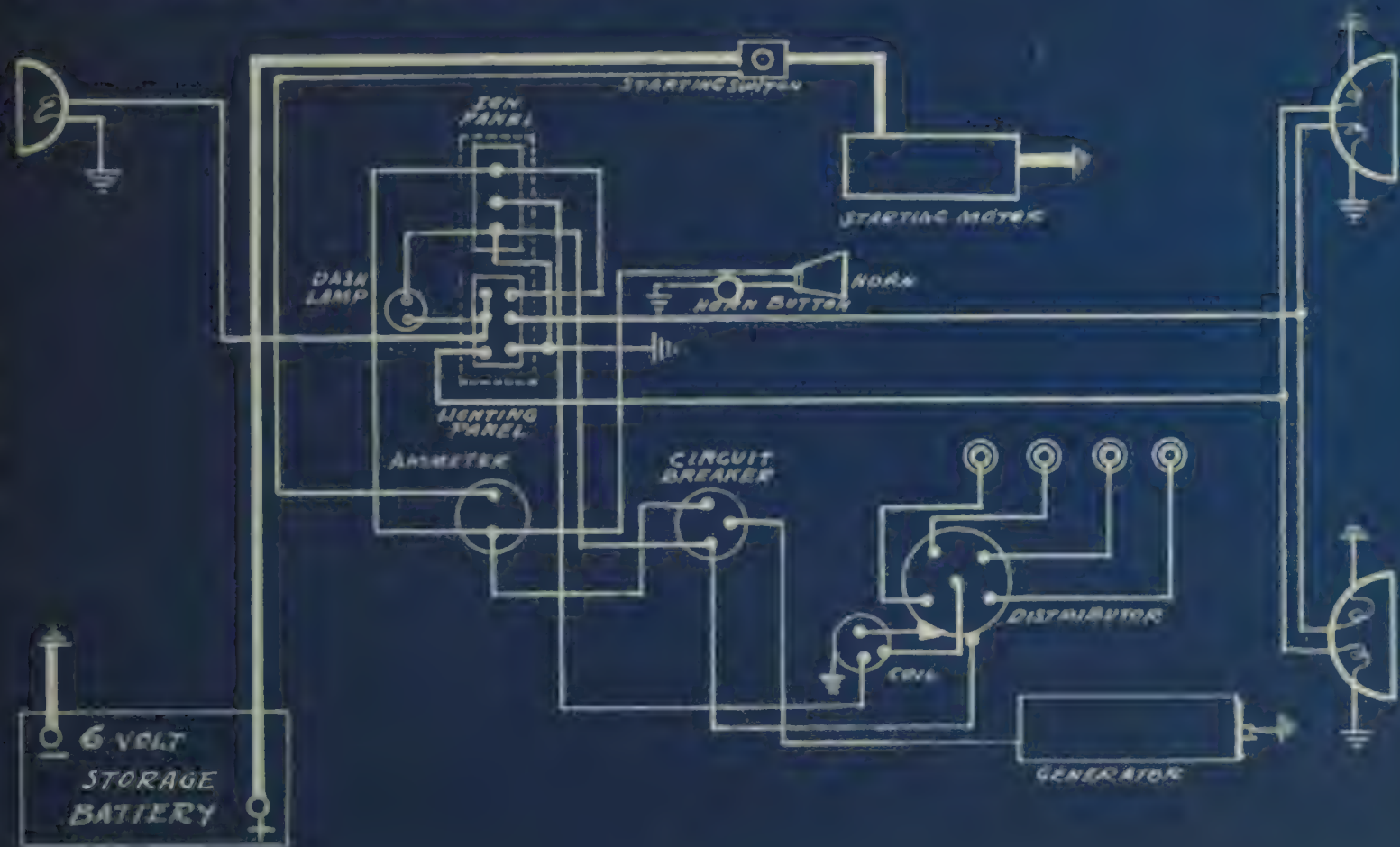




# COMMONWEALTH MODEL '42' 1920

## DYNETO STG. & LTG. CONNECTIONS

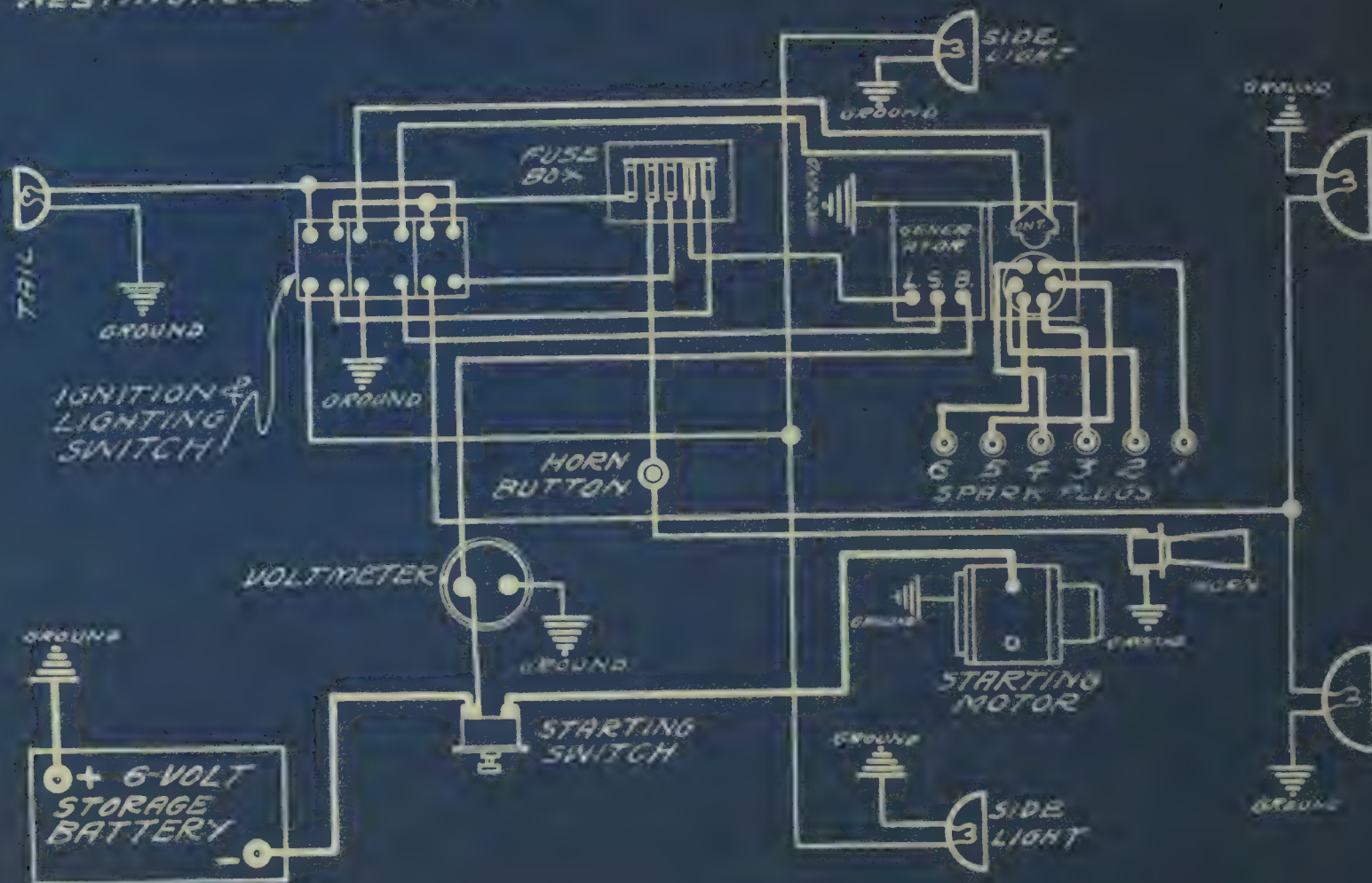
FROM MPRI.B.P. 42230-B



# CRAWFORD 1915 "6"

WESTINGHOUSE SYSTEM

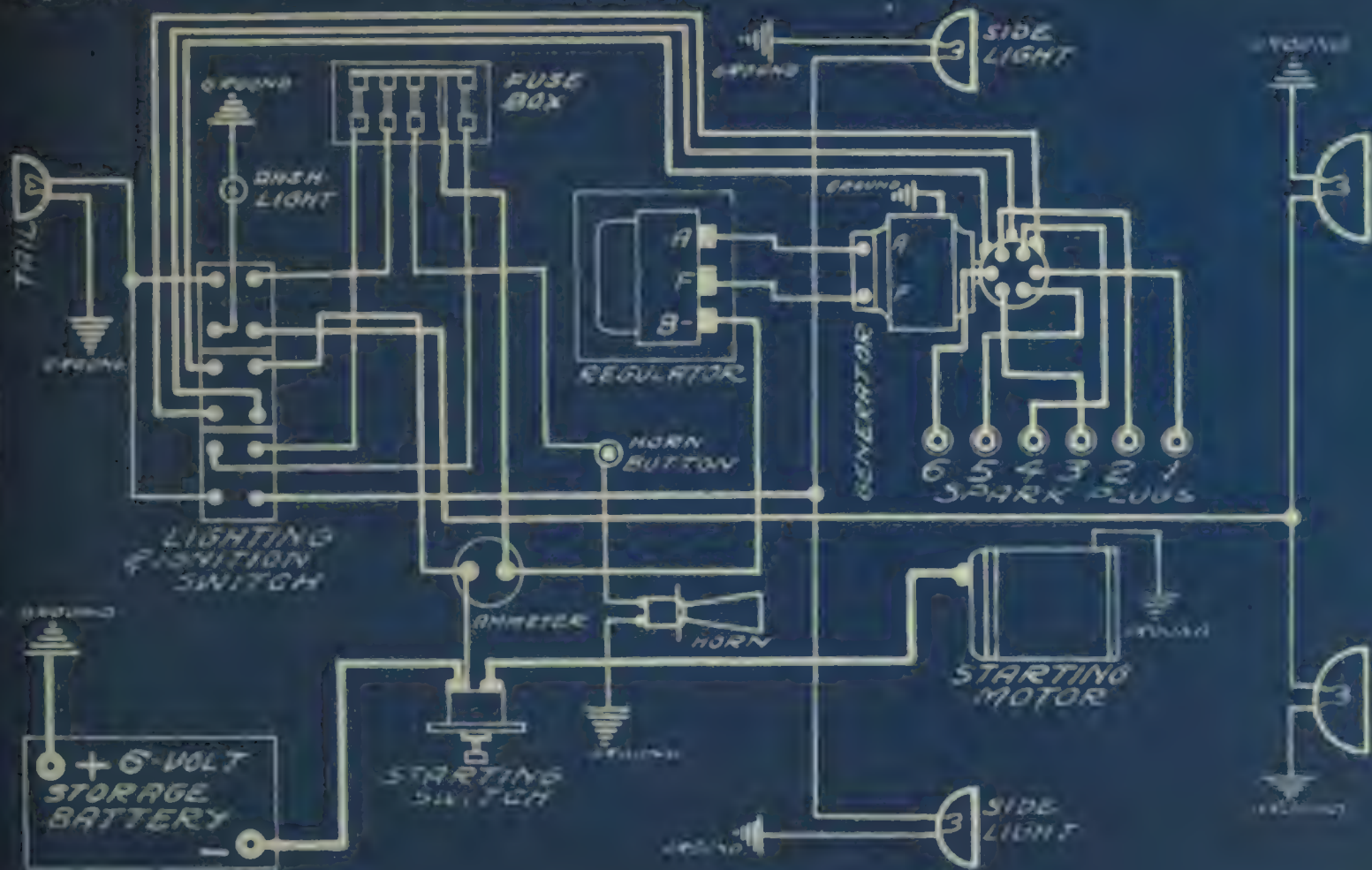
FROM WEST MANUAL



# CRAWFORD 1916

## WESTINGHOUSE SYSTEM

FROM WEST MANUAL

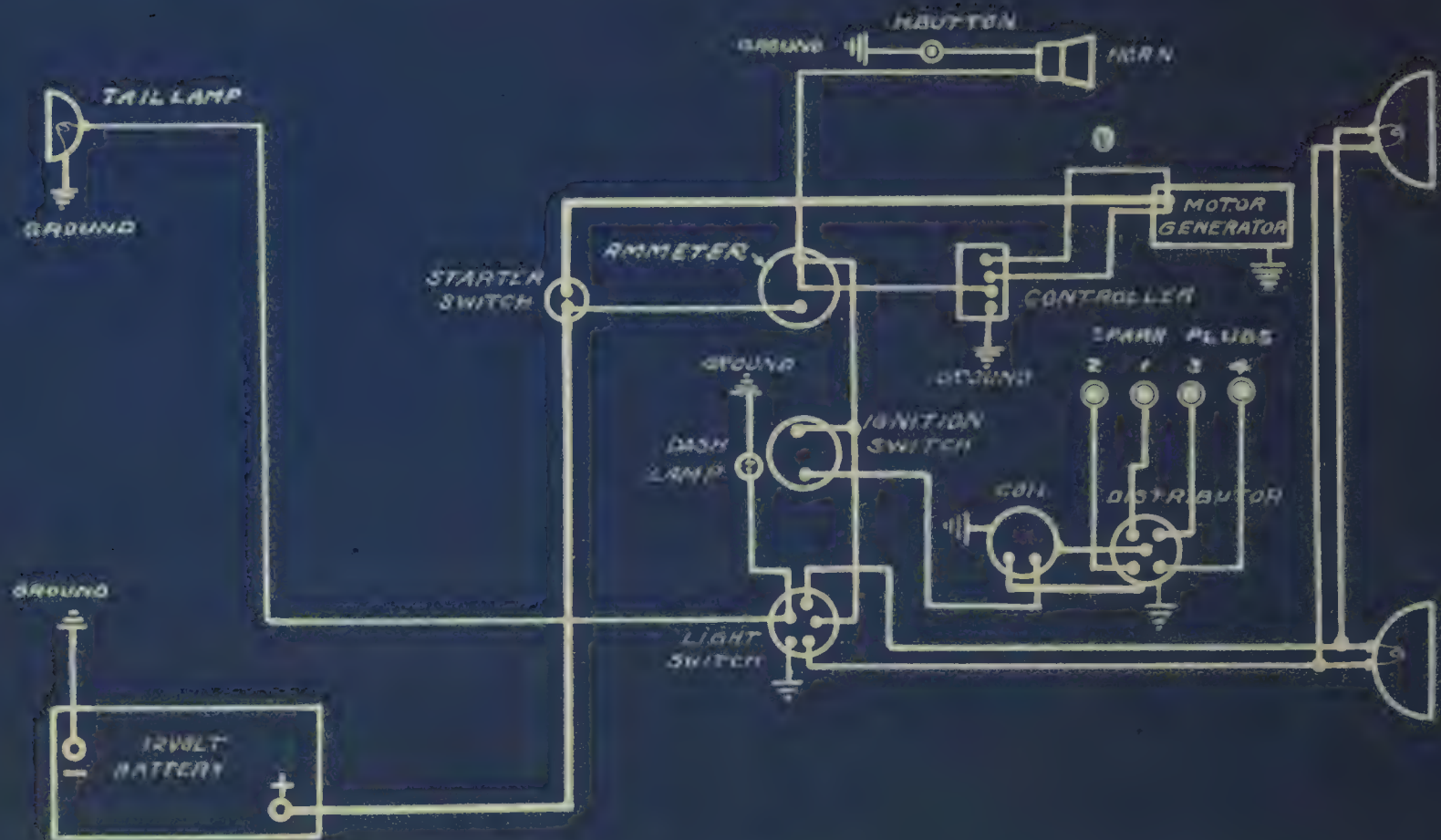


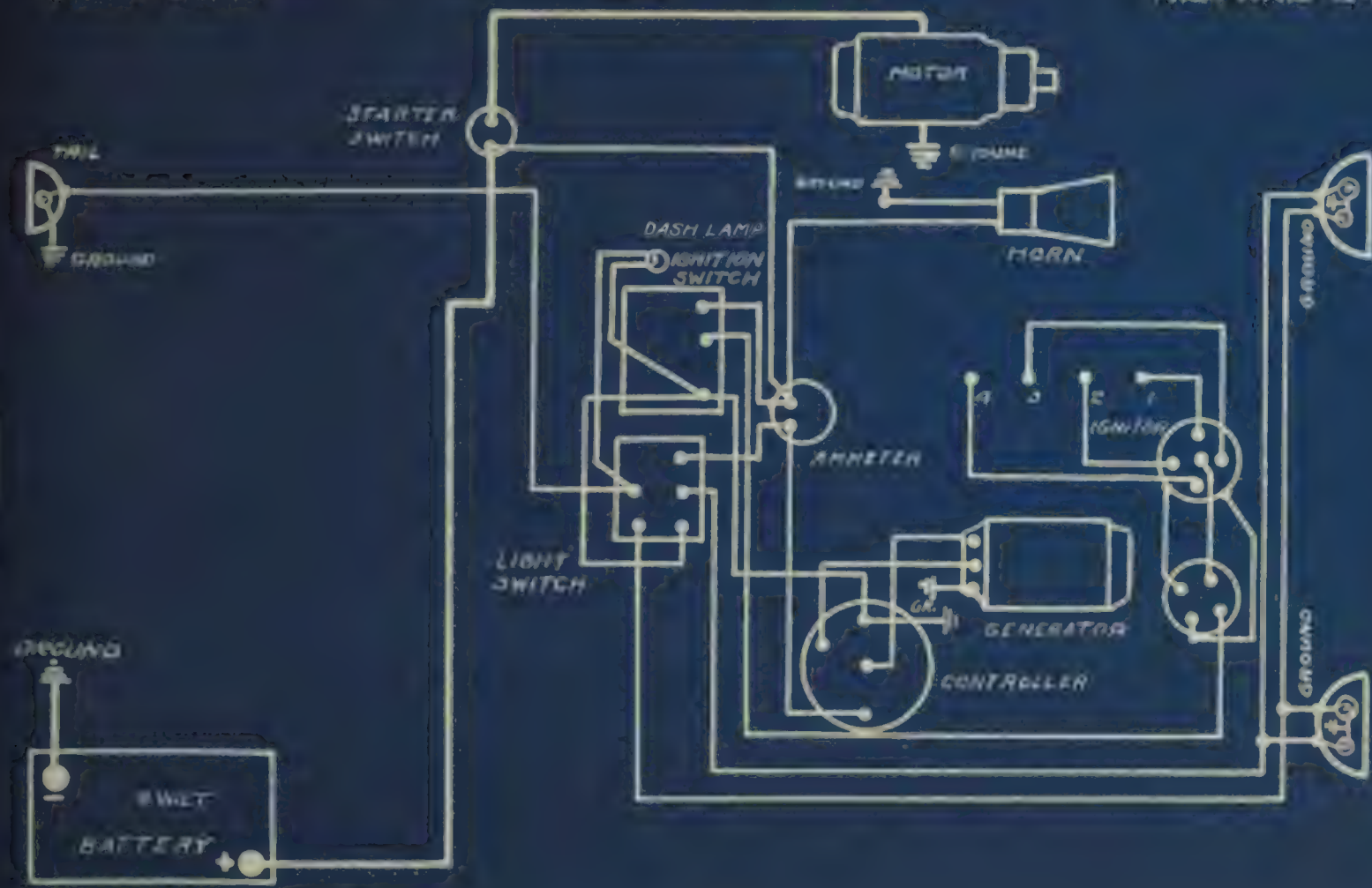


# CROW-ELKHART 1916 25-30

DISCO SYSTEM

FROM MFRS. B.J.

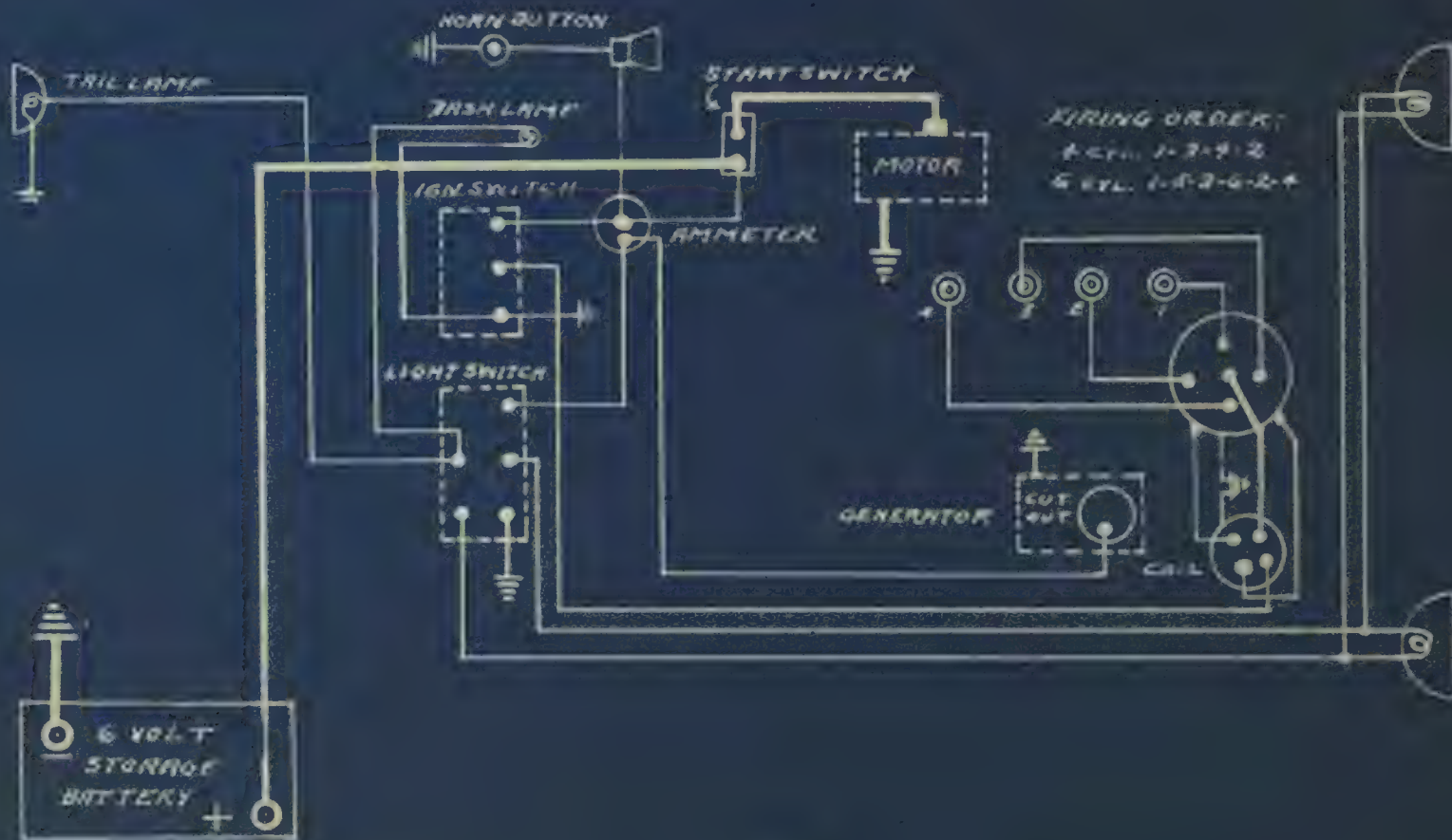




# CROW-ELKHART K&H 32, 34, 36, 42, 44, 46, 1917, 1918, 1919, H&L 1920.

DYNETO SYSTEM - CONN. IGNITION

FROM MFR'S DIRECTIONS

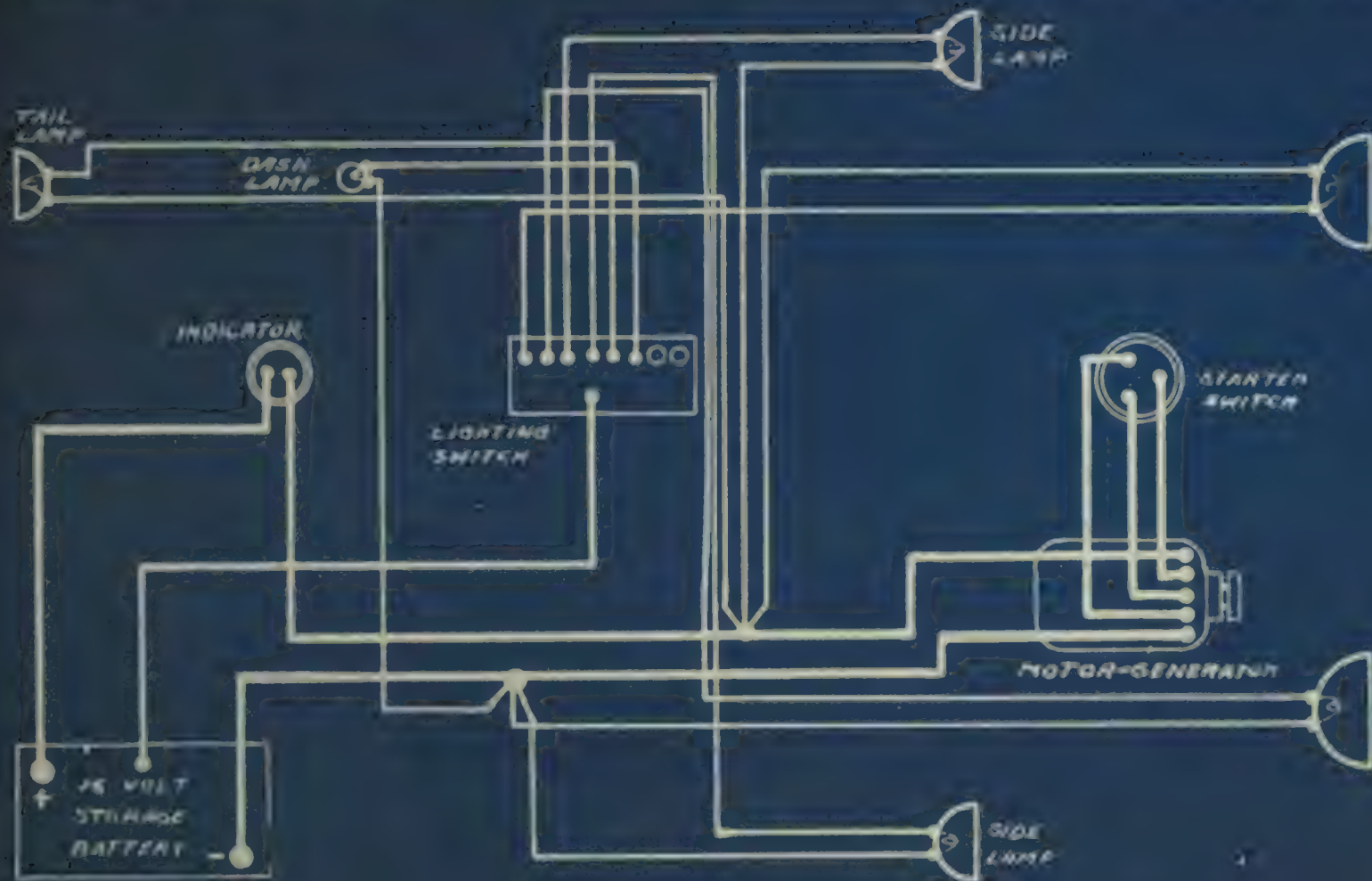




# CUNNINGHAM 1913-14 MODEL M

NORTHEAST SYSTEM

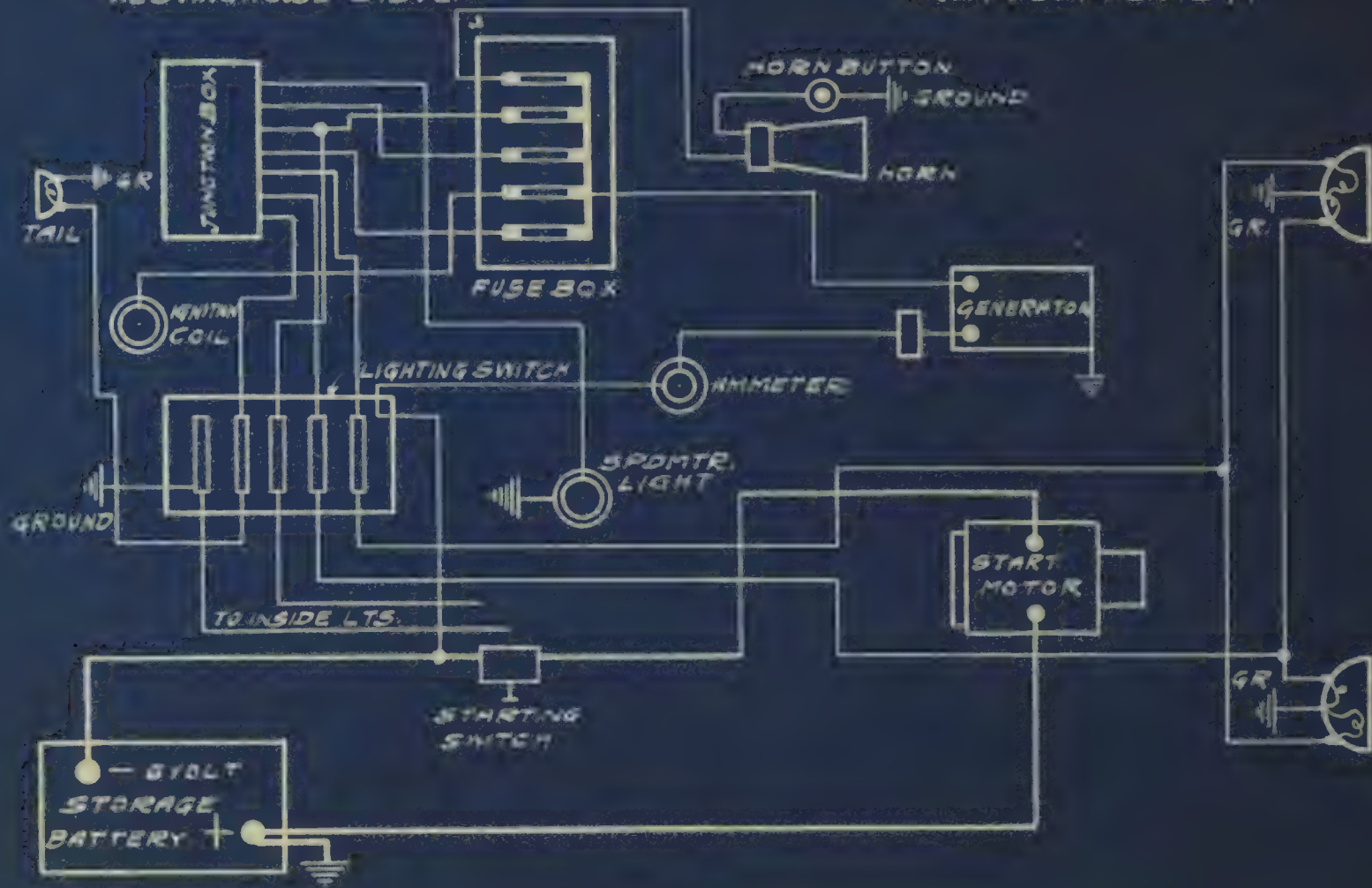
FROM N.E. PLATE NO. 270.



# CUNNINGHAM 1916 4

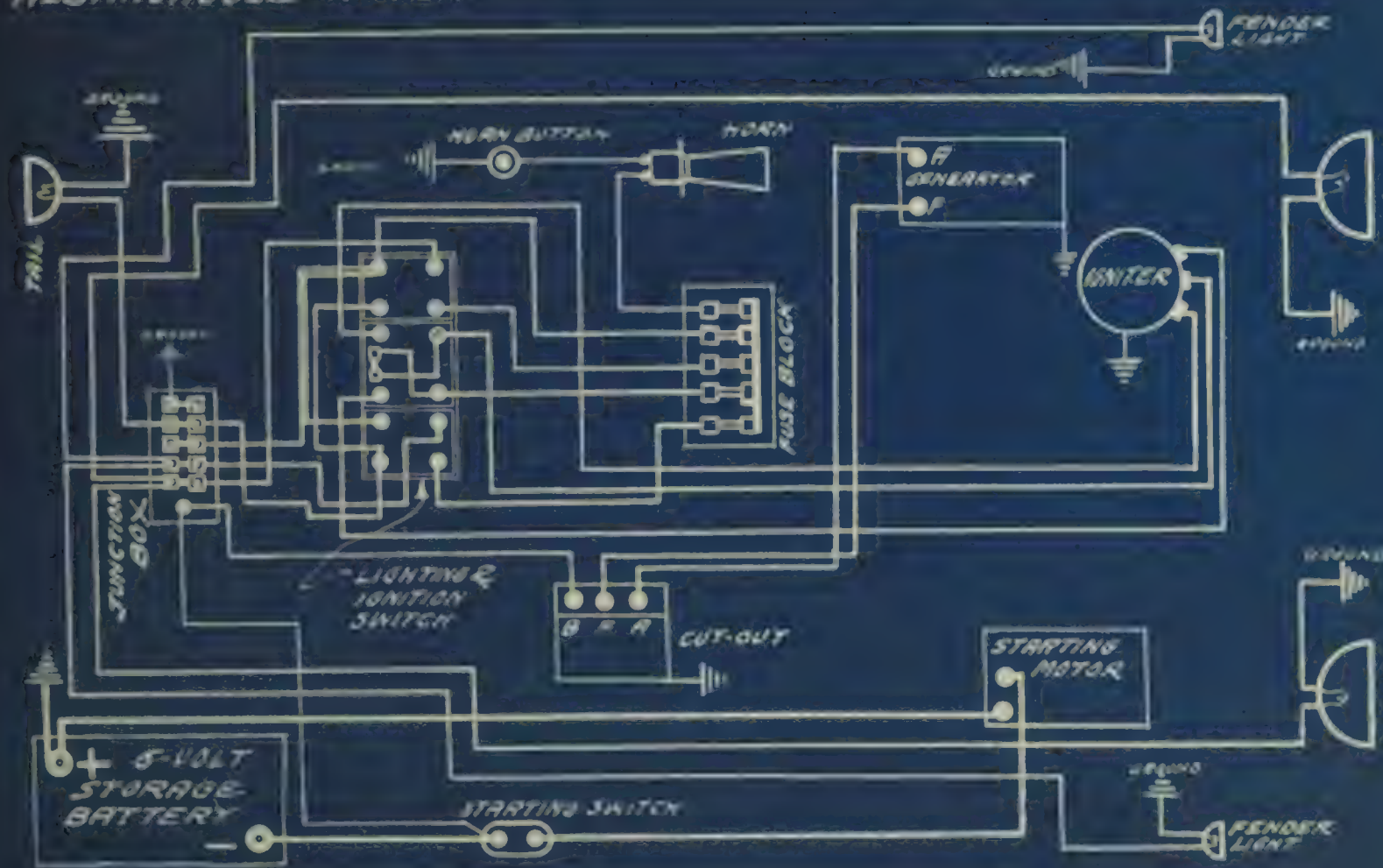
WESTINGHOUSE SYSTEM

FROM WEST PLATE 47



# CUNNINGHAM 1916-1917 "V" WESTINGHOUSE SYSTEM

FROM MFRS. BR



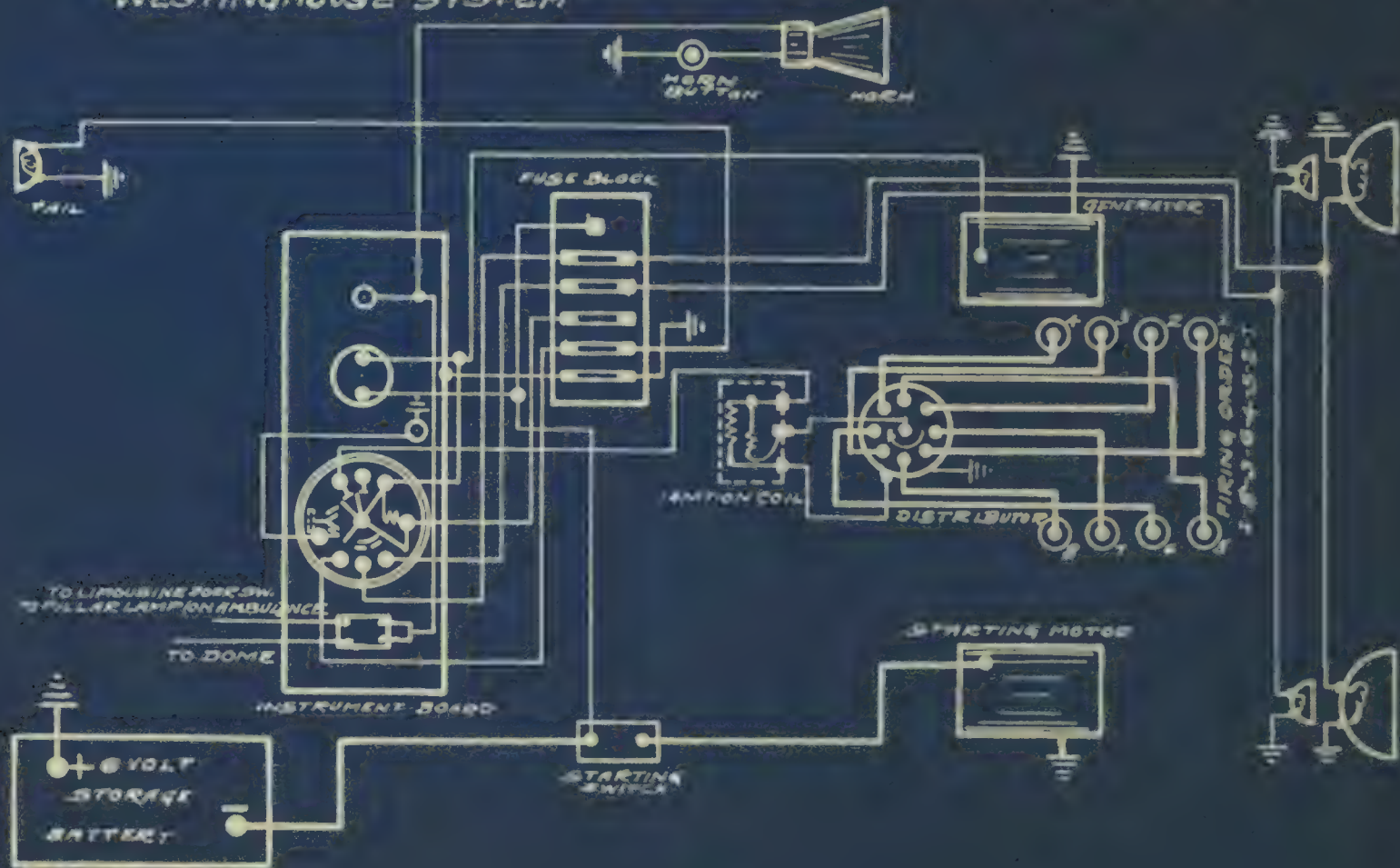


# CUNNINGHAM 1918-1919 "V-3"

DELCO SYSTEM (IGNITION)

WESTINGHOUSE SYSTEM

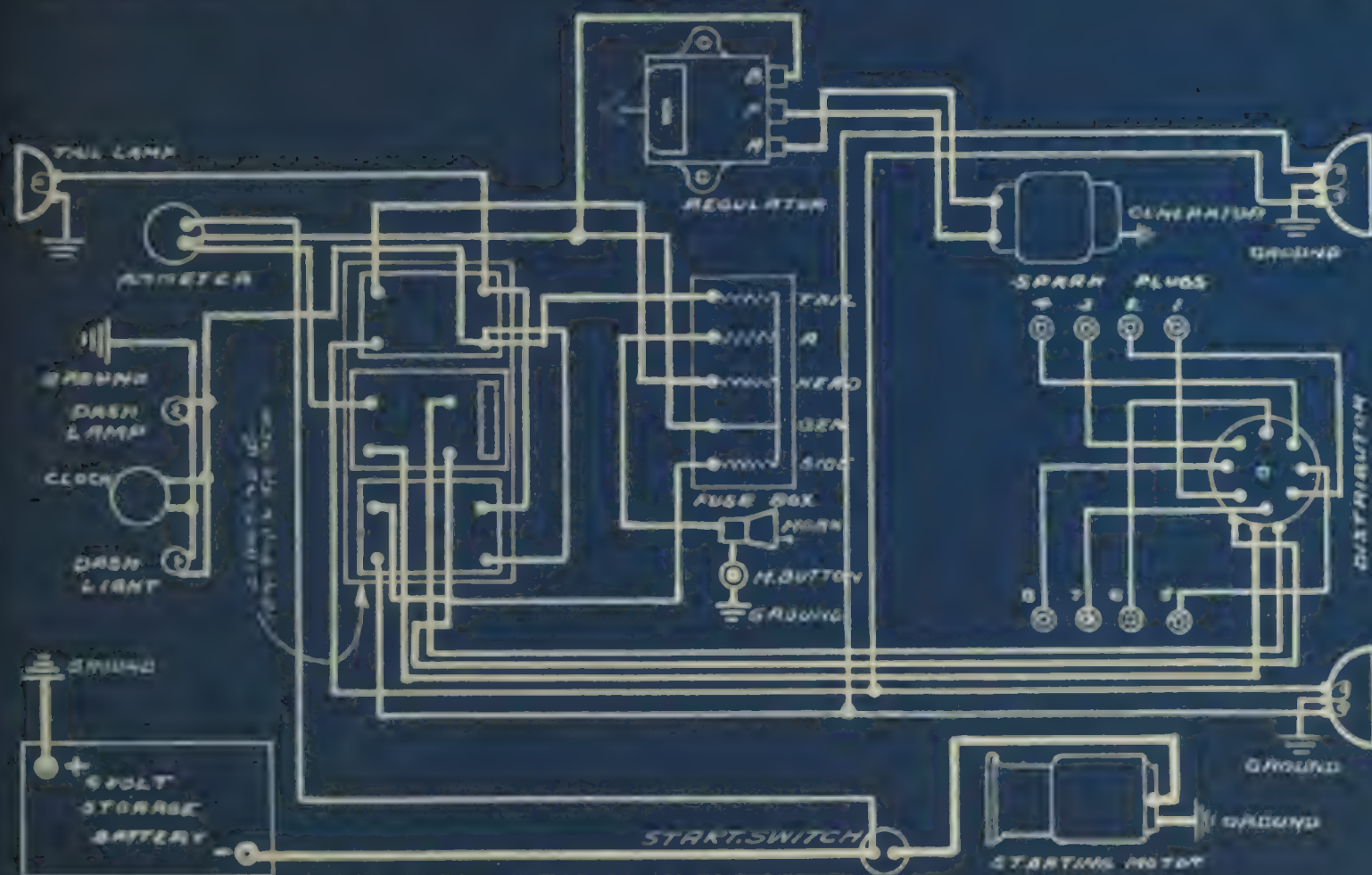
FROM MFRS. INST. BOOK



# DANIELS 1916-1917-1918 "A8"

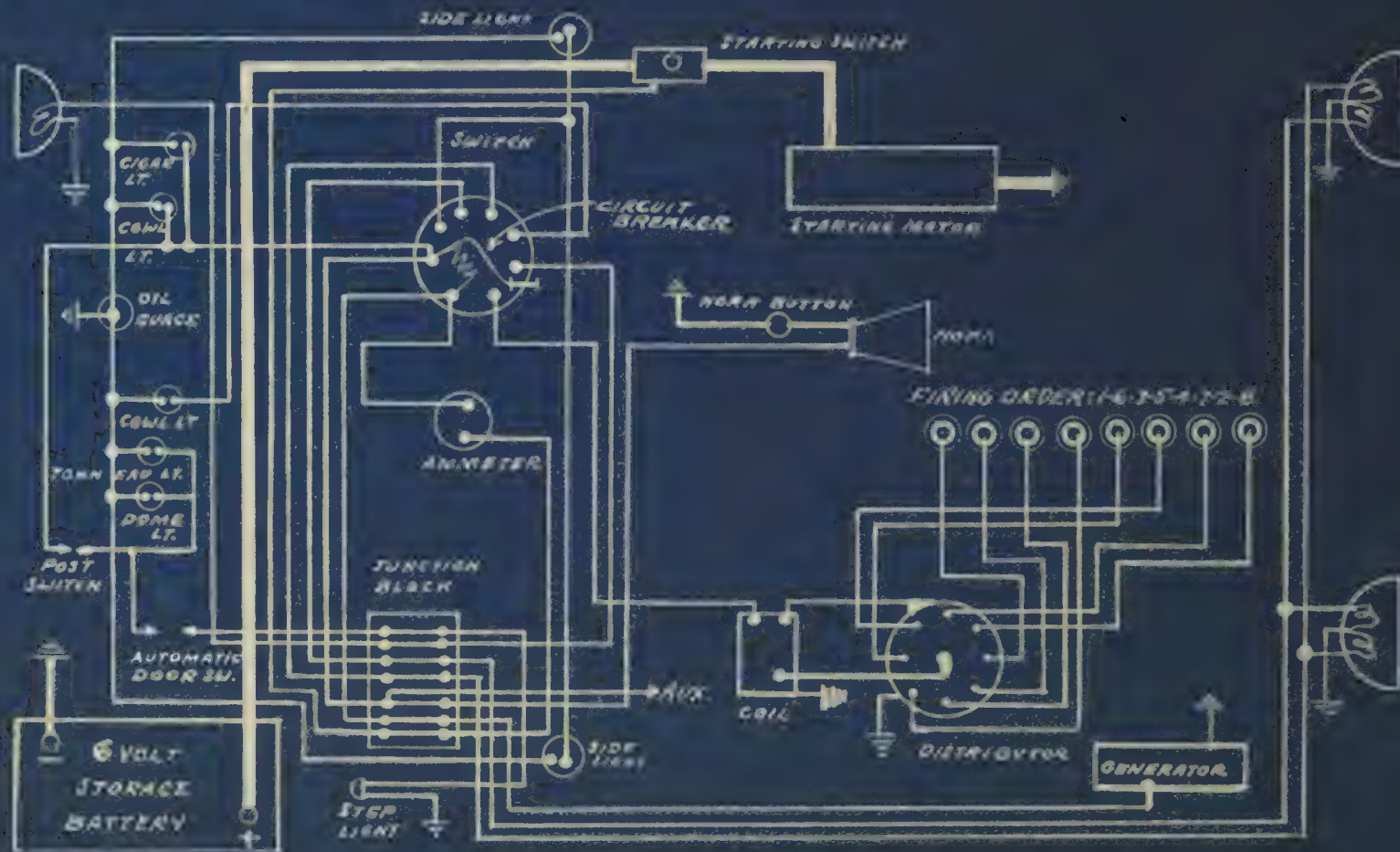
WESTINGHOUSE SYSTEM

FORM HAZZ 84



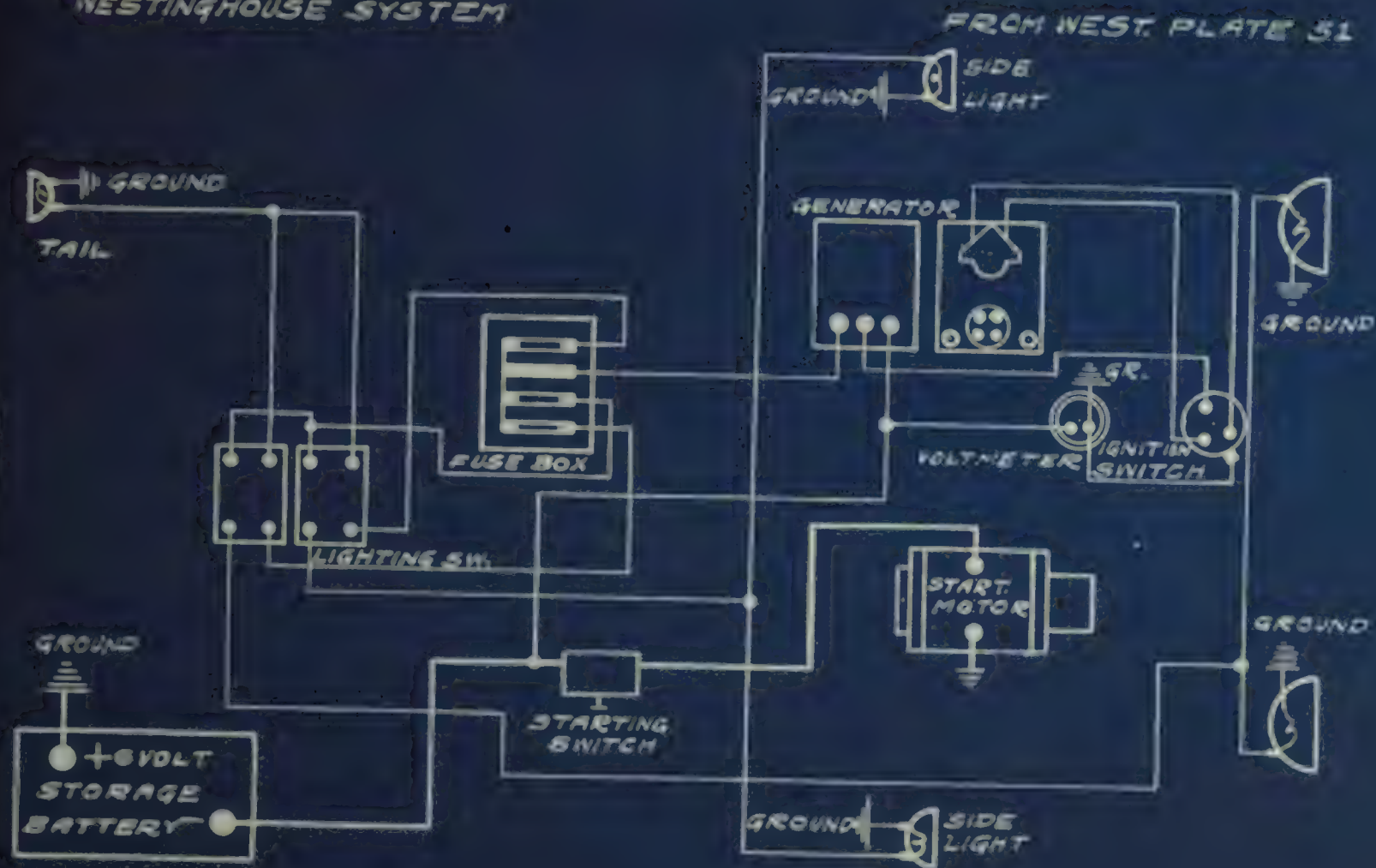
# DANIELS 'D' 1919-1920 DELCO SYSTEM

FROM N.P.S. DT 2751-2



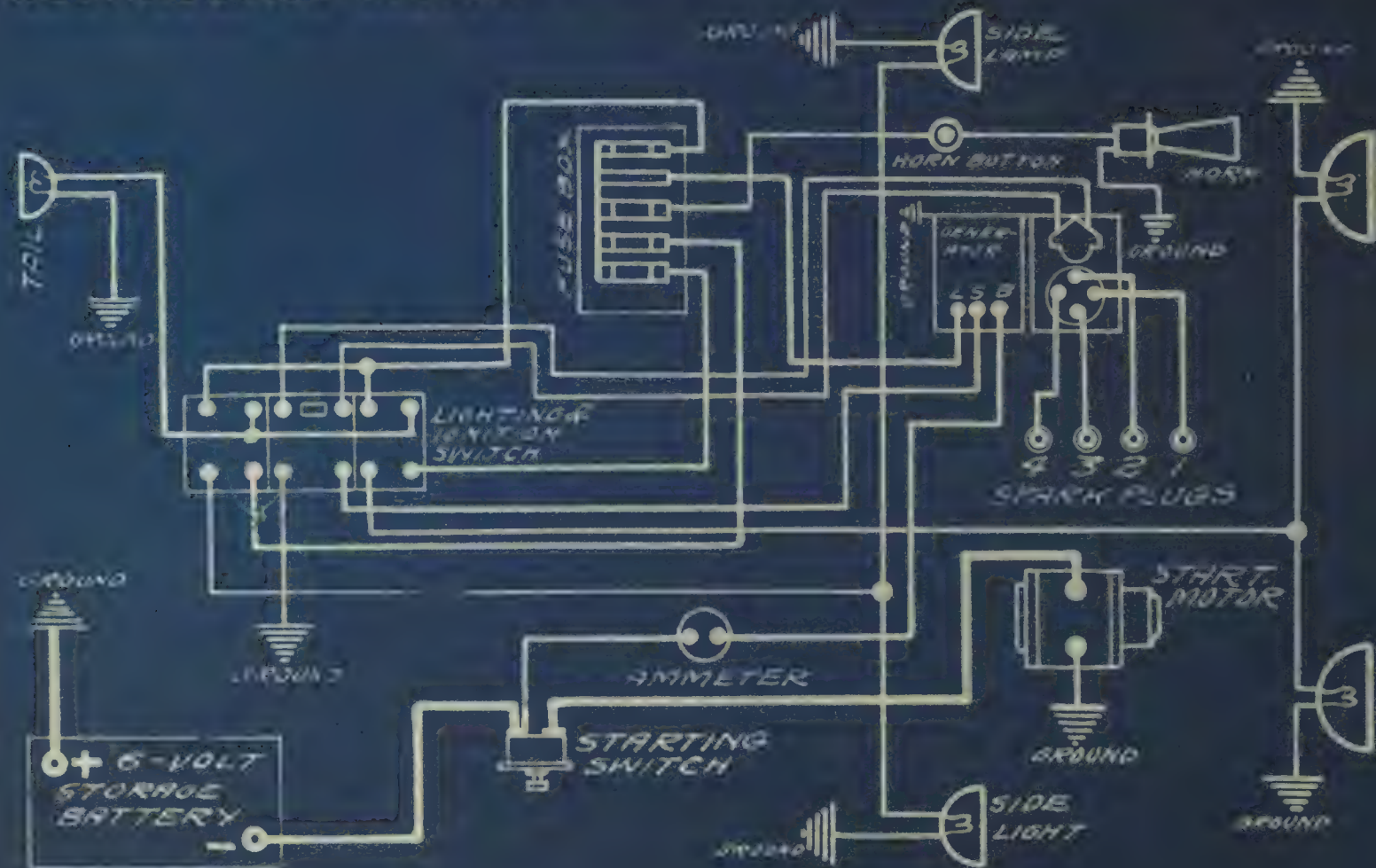


# DART 1916 B&C WESTINGHOUSE SYSTEM



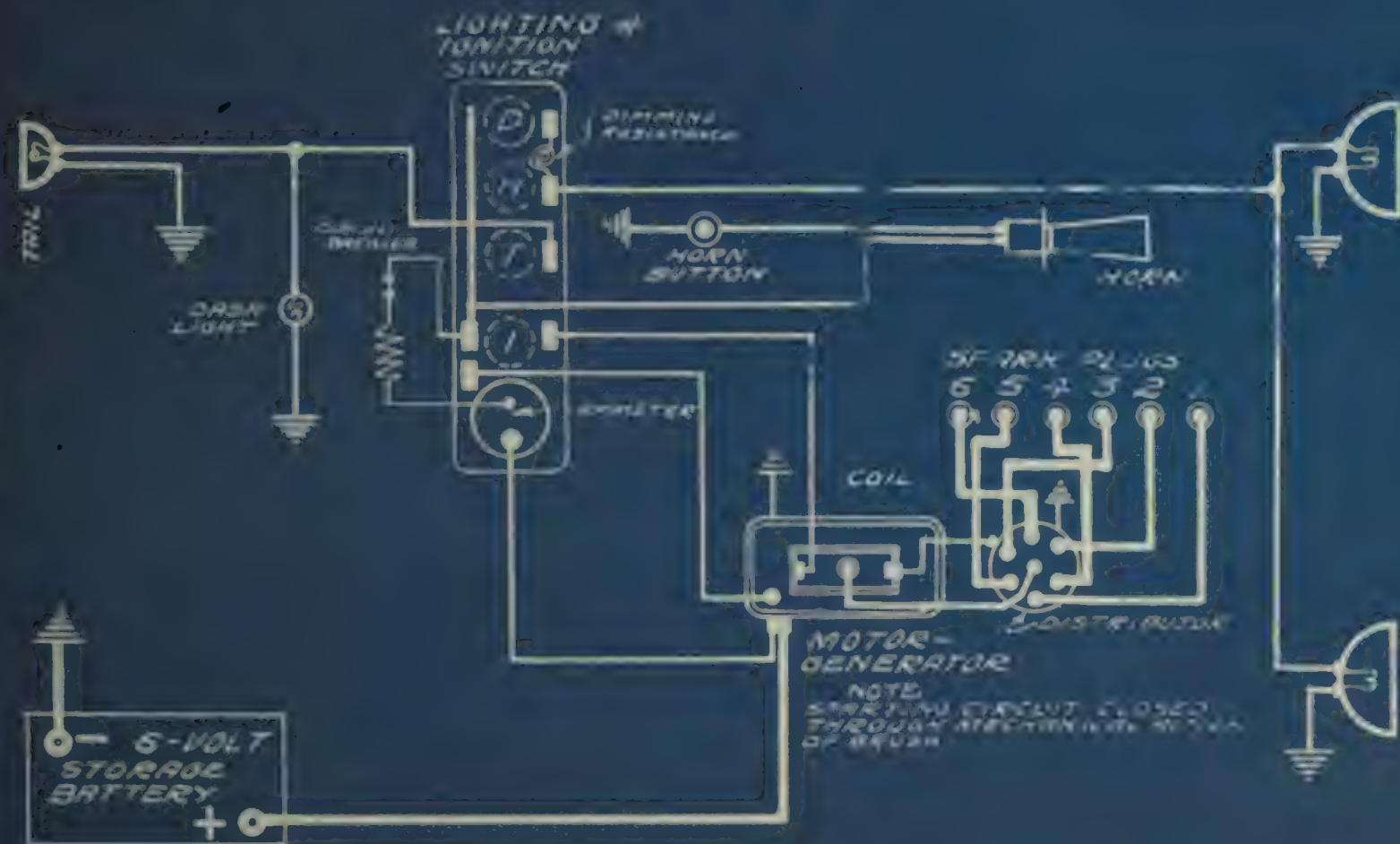
DAVIS 1915 38-A-B-C  
NESTING HOUSE SYSTEM

FROM WEST DWG 54



DAVIS 1916 C-38 5-E 6-G  
DELCO SYSTEM

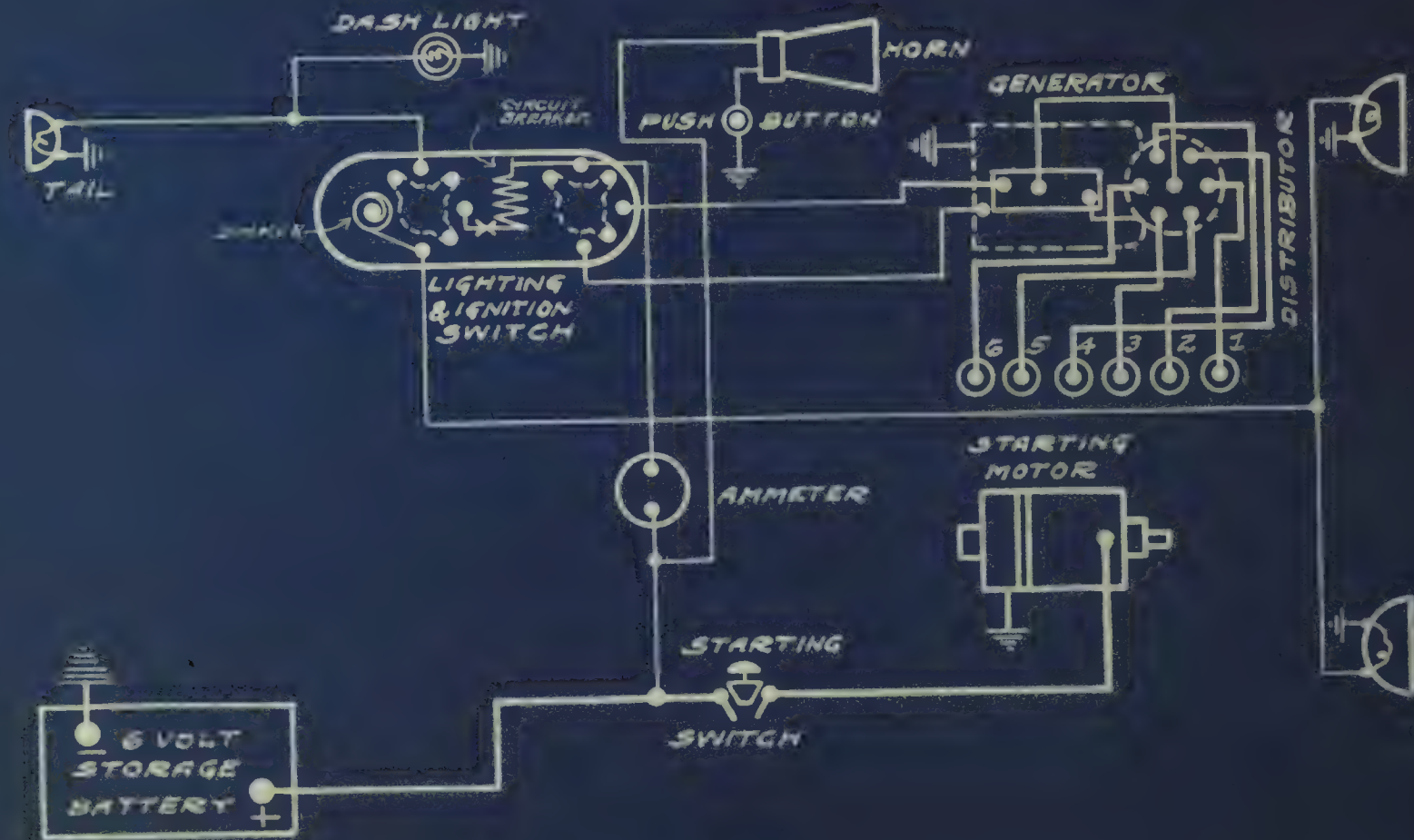
FROM DELCO MANUAL





DAVIS 1917-18-19-20  
DELCO SYSTEM

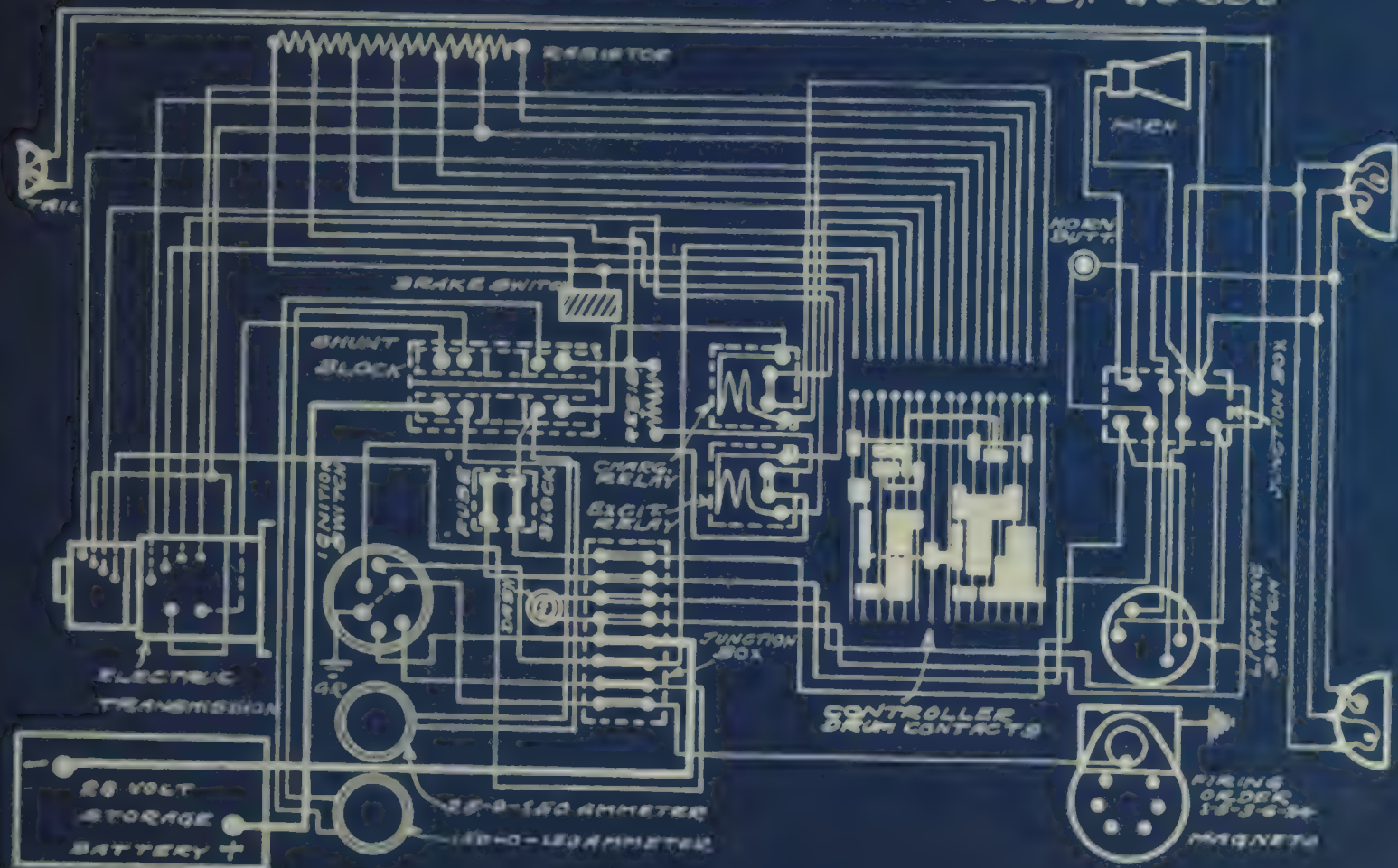
6-H, I & K  
FROM DELCO MANUAL



# DEERING MAGNETIC 1918

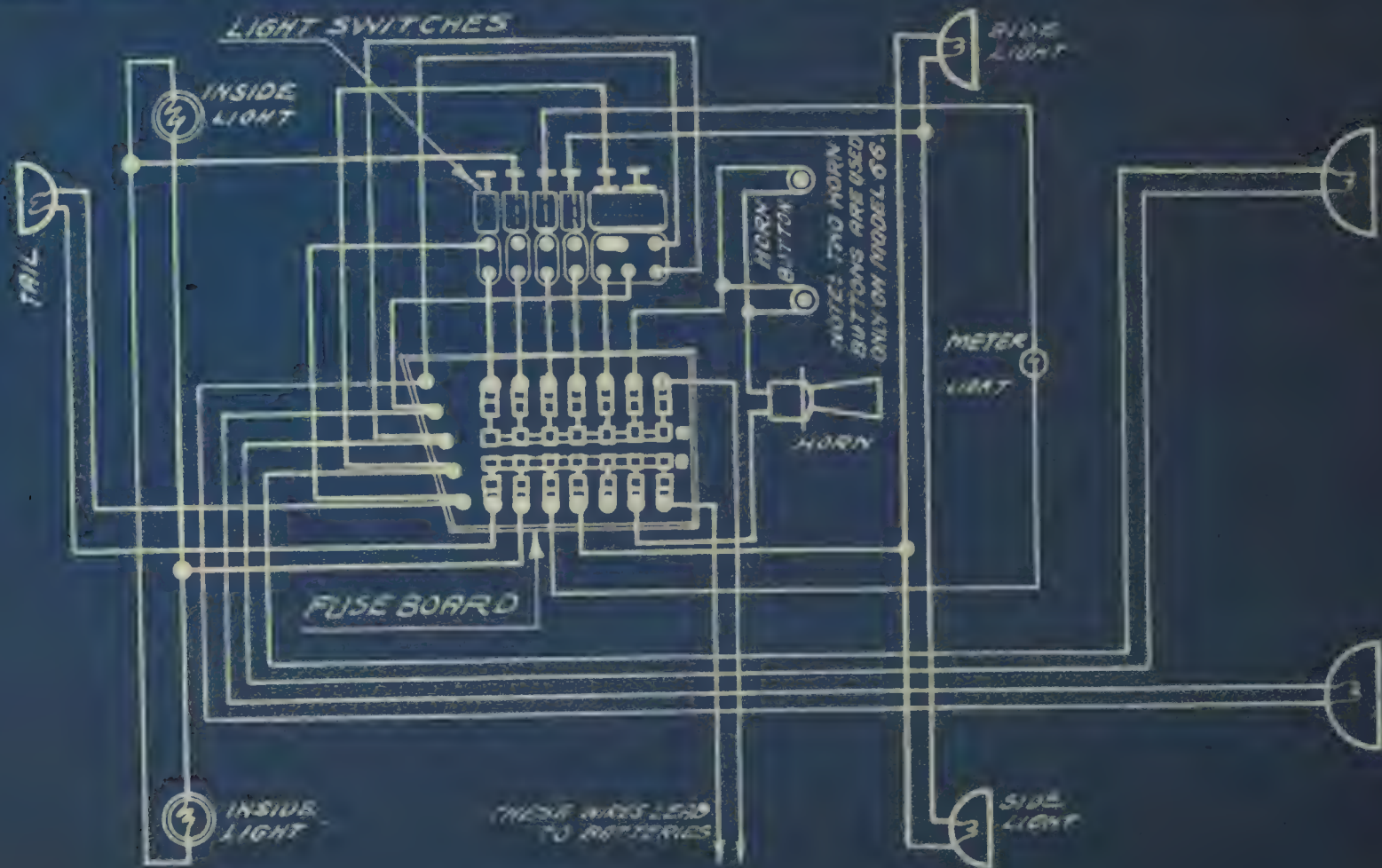
OWEN SYSTEM

FROM MPRS. B/P GC-550

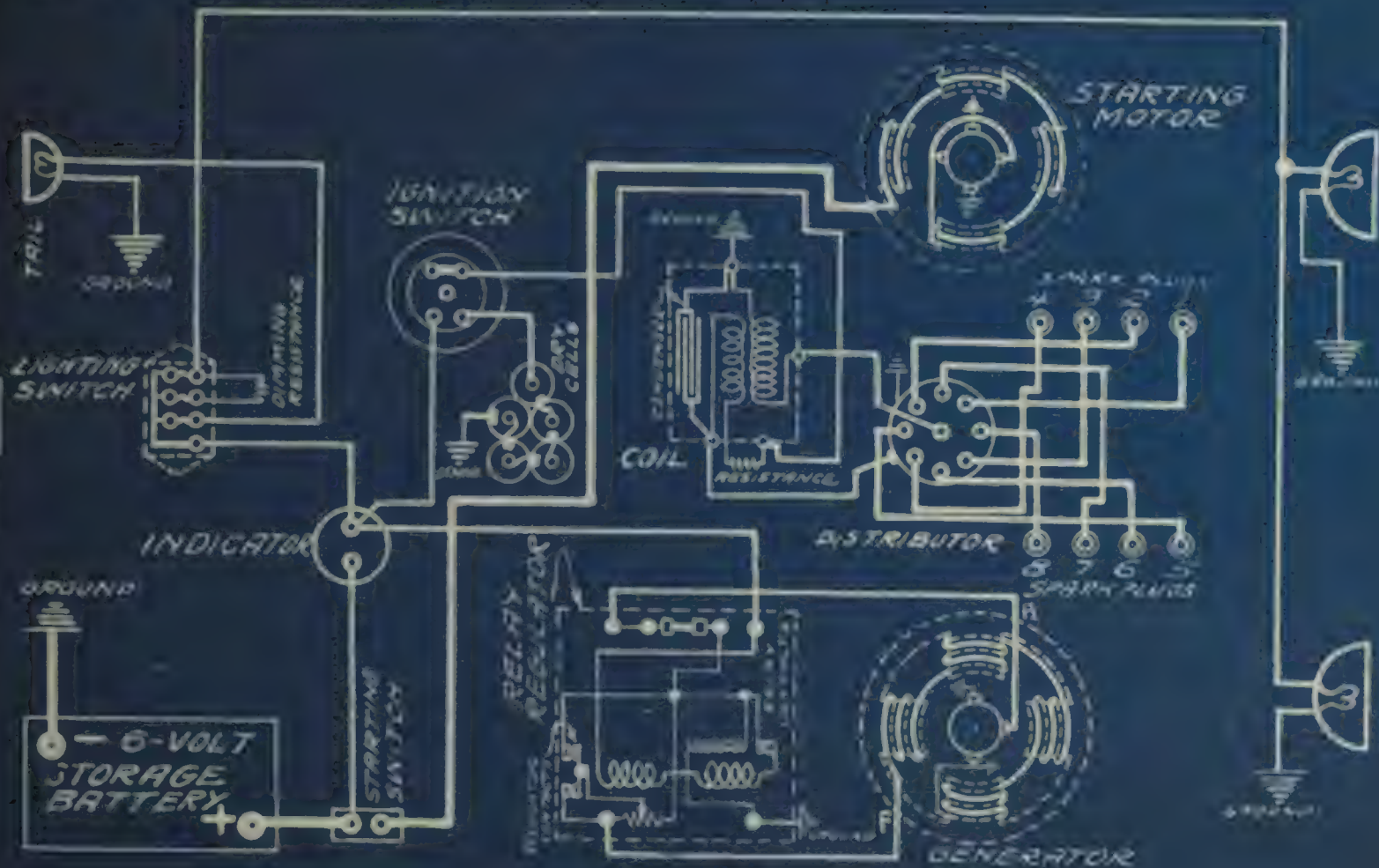


# DETROIT ELECTRIC 62-63-64-65-66

FROM MFRS PLATE 47133



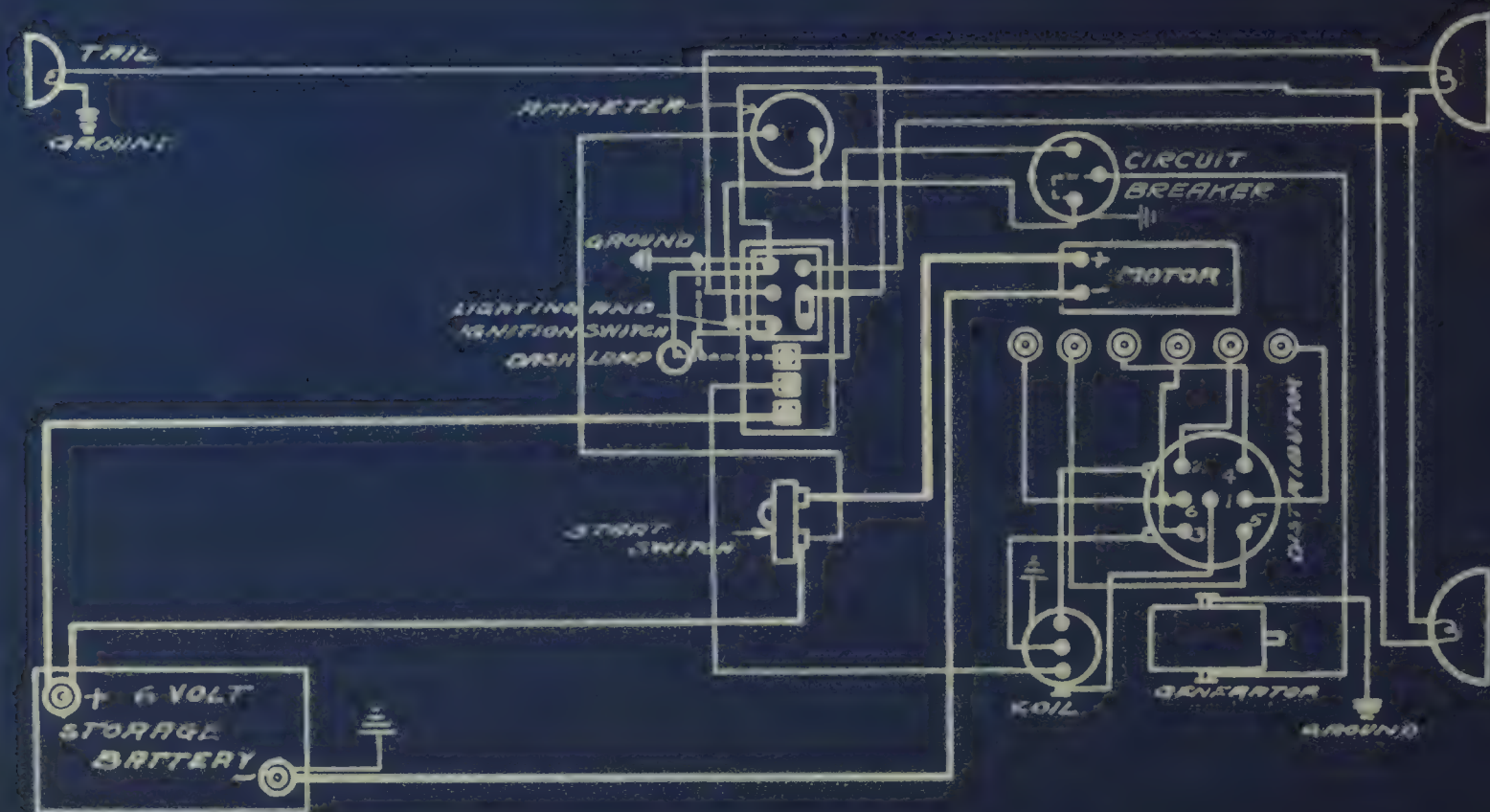




# DETROITER 1916 "6-45"

AUTOLITE SYSTEM

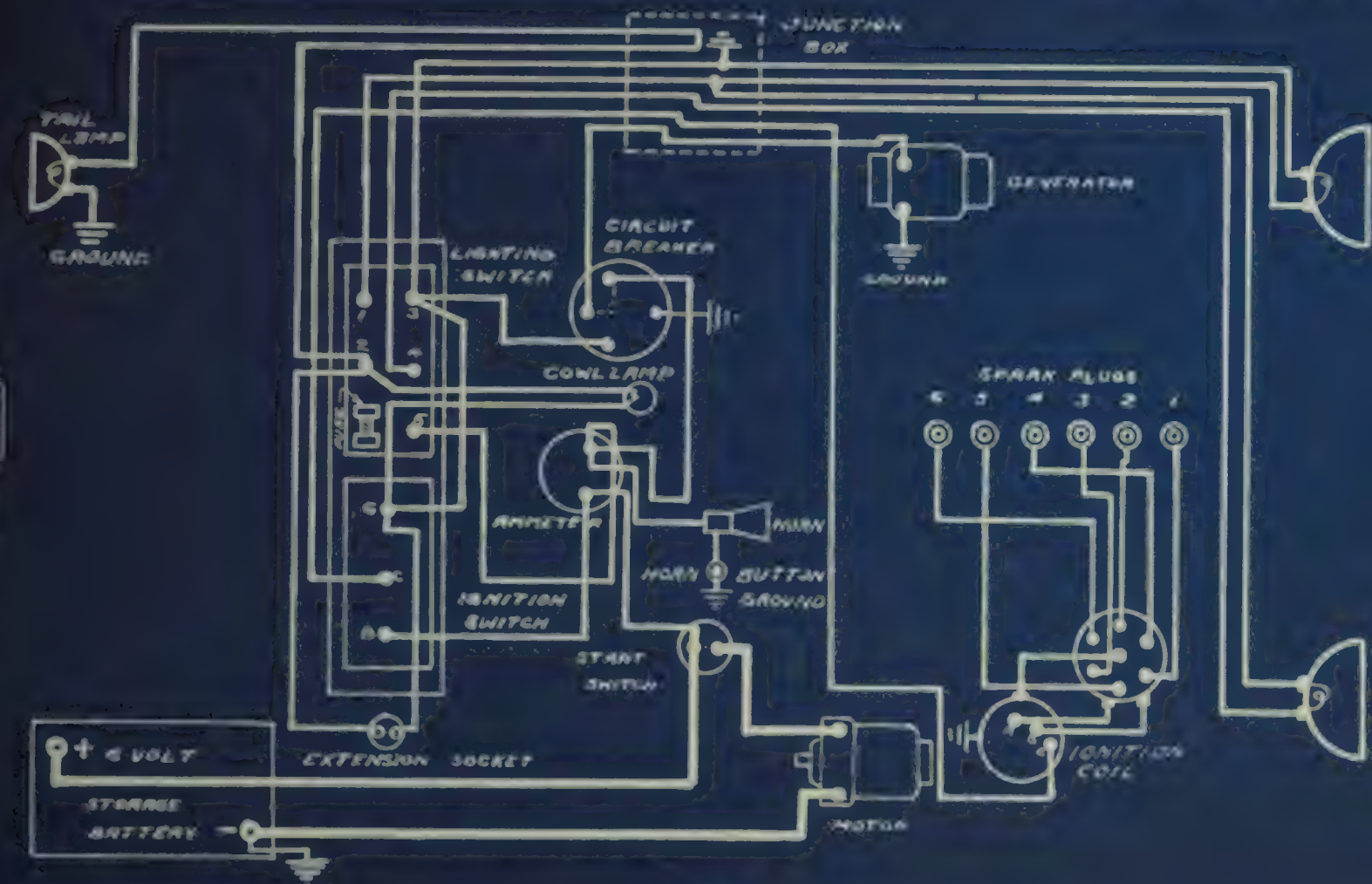
FROM AUTOLITE B.F.



# DETROITER MODEL 6-45 1917.

AUTO-LITE SYSTEM

WASH. MFG. CO. M-1020



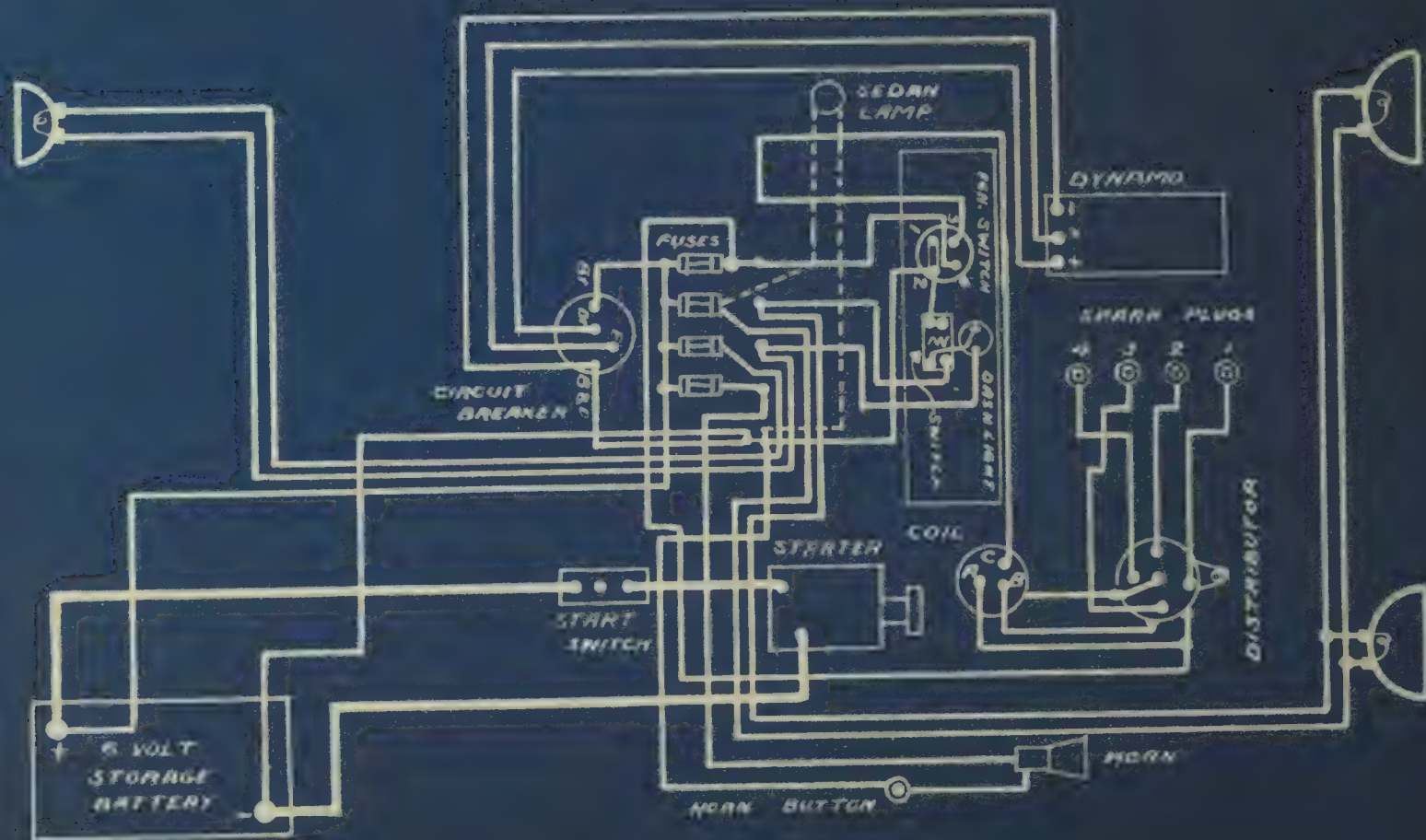


DIXIE FLYER  
DYNATO SYSTEM

MODEL L-3

1916-1917

FROM REAR B.L.

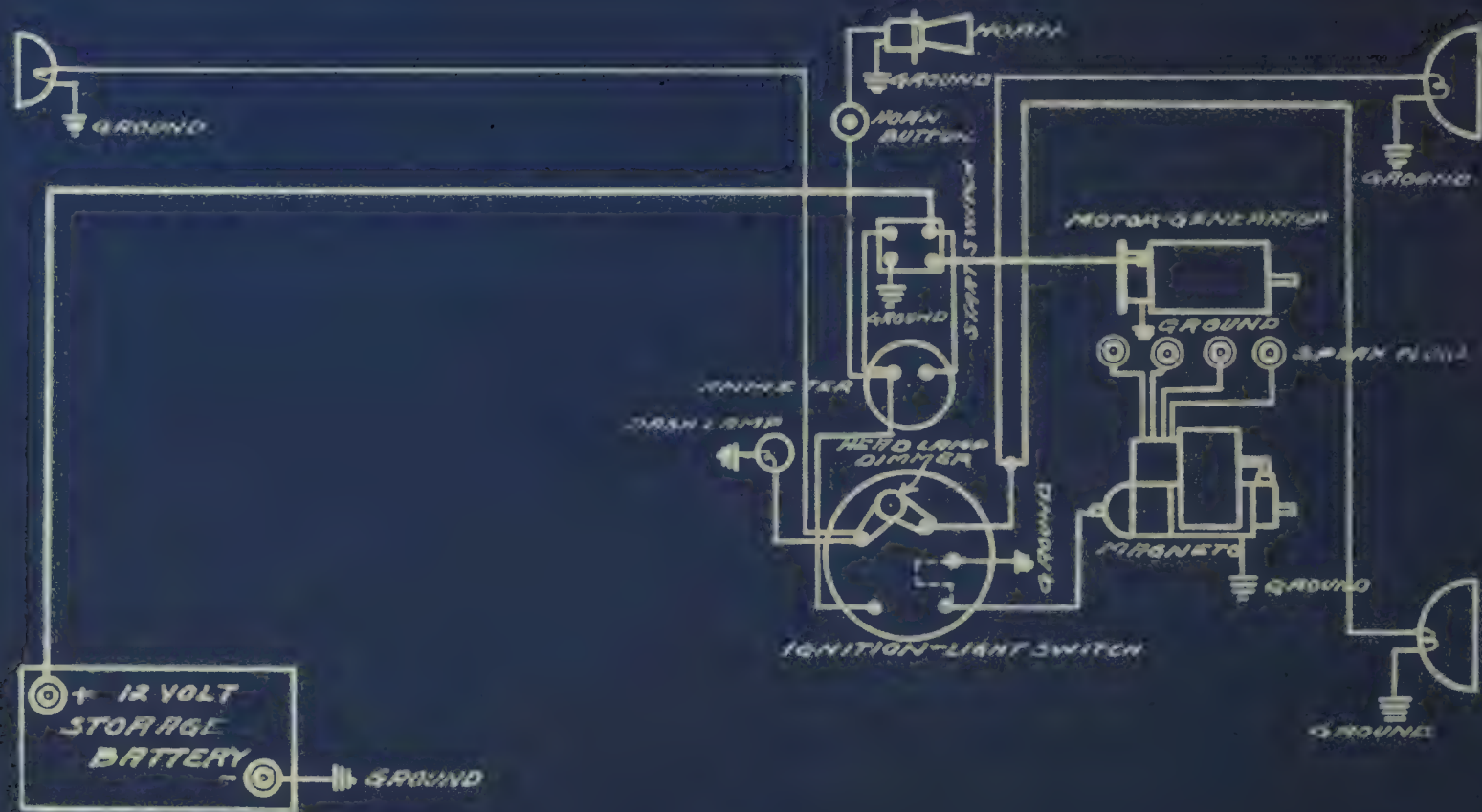




**DODGE**

FROM DODGE BLUE PRINT

NORTH-EAST SINGLE WIRE STARTER-MAGNETO IGNITION



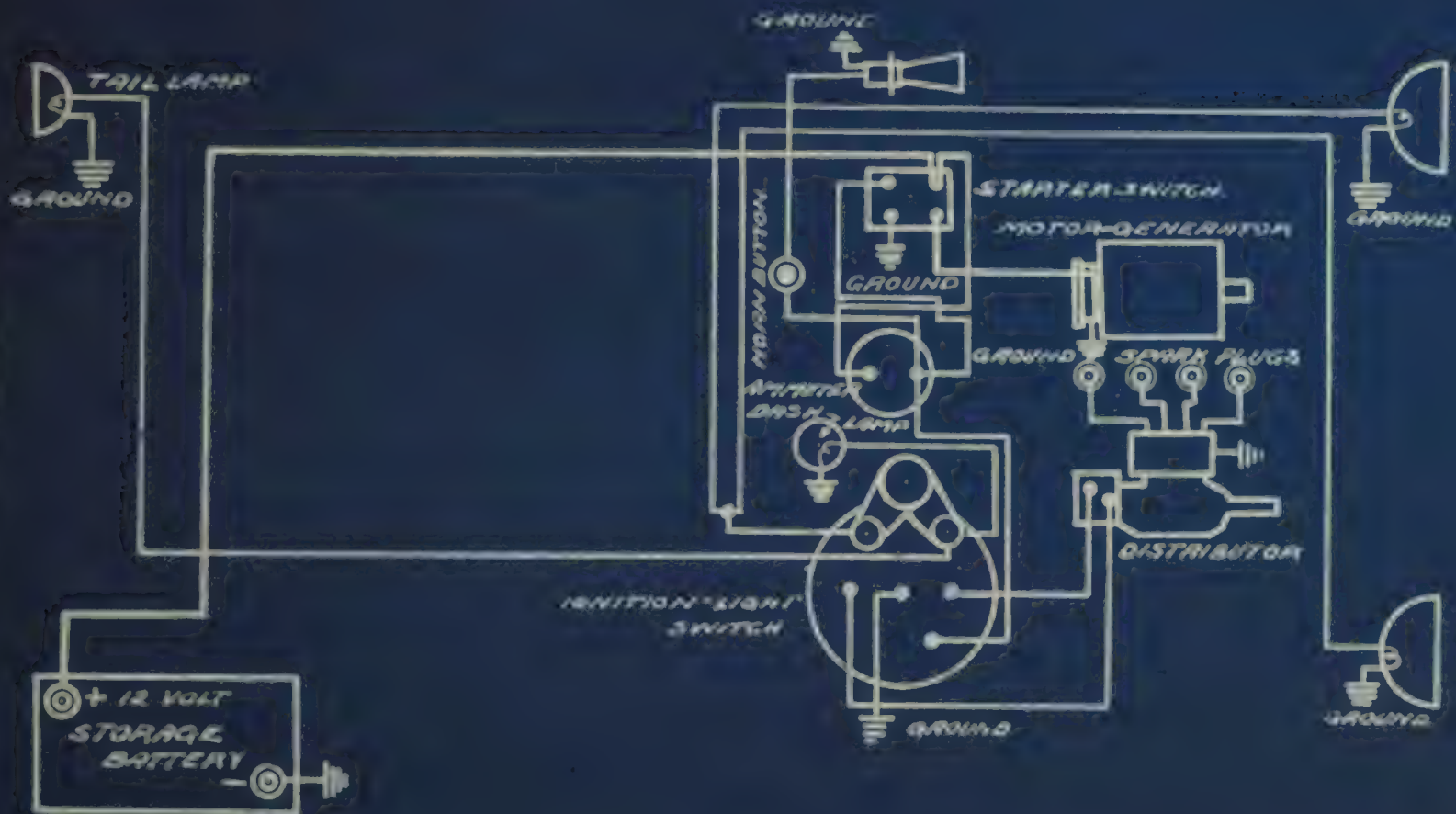
AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL. U.S.A.



**DODGE**

FROM DODGE BLUE PRINT 2-5428

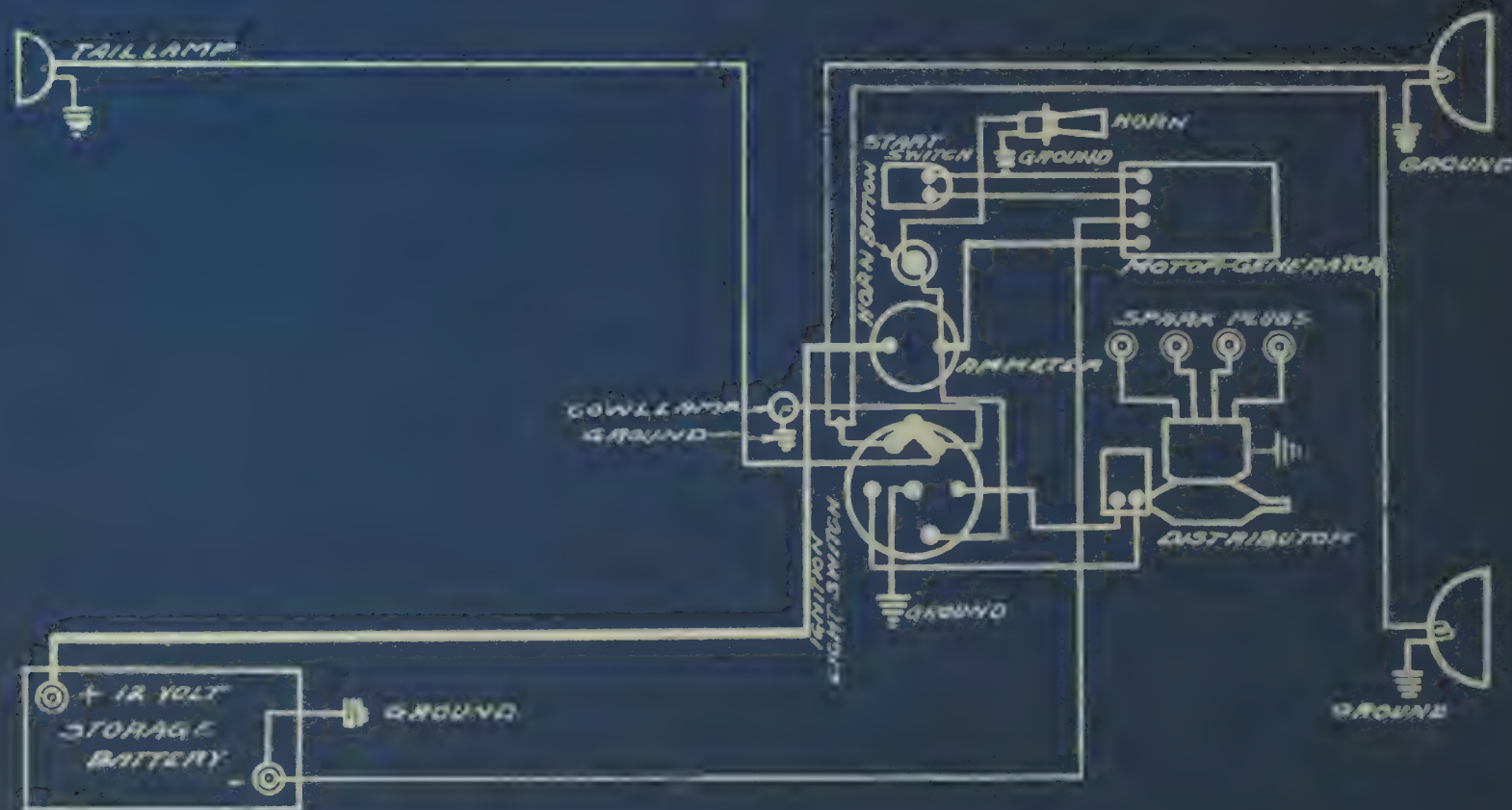
**NORTH-EAST-SINGLE WIRE STARTER-DELCO IGNITION**



DODGE

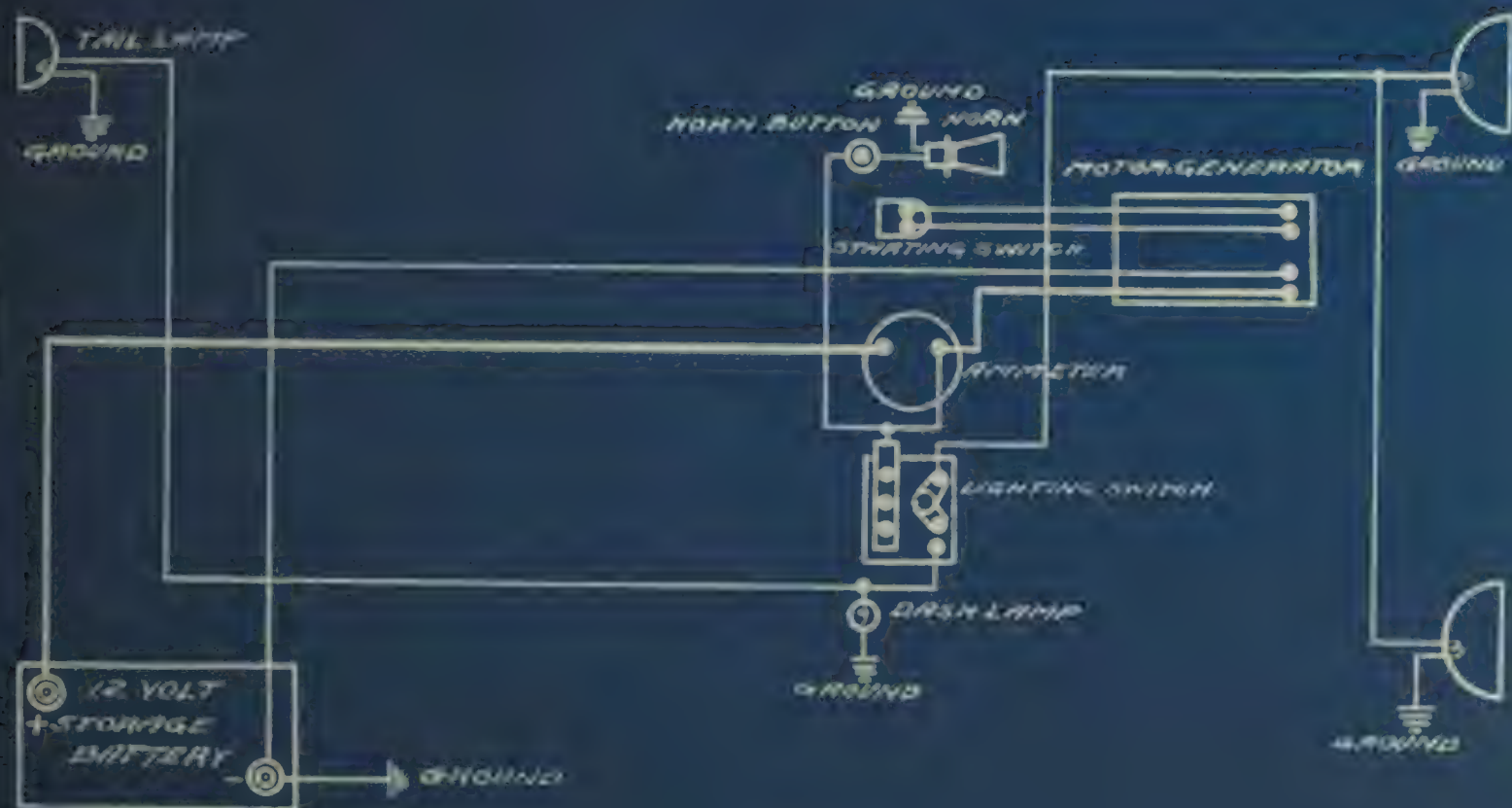
FROM DODGE BLUE PRINT

NORTH-EAST—TWO WIRE STARTER - DELCO IGNITION



**DODGE 1915**  
NORTH-EAST SYSTEM

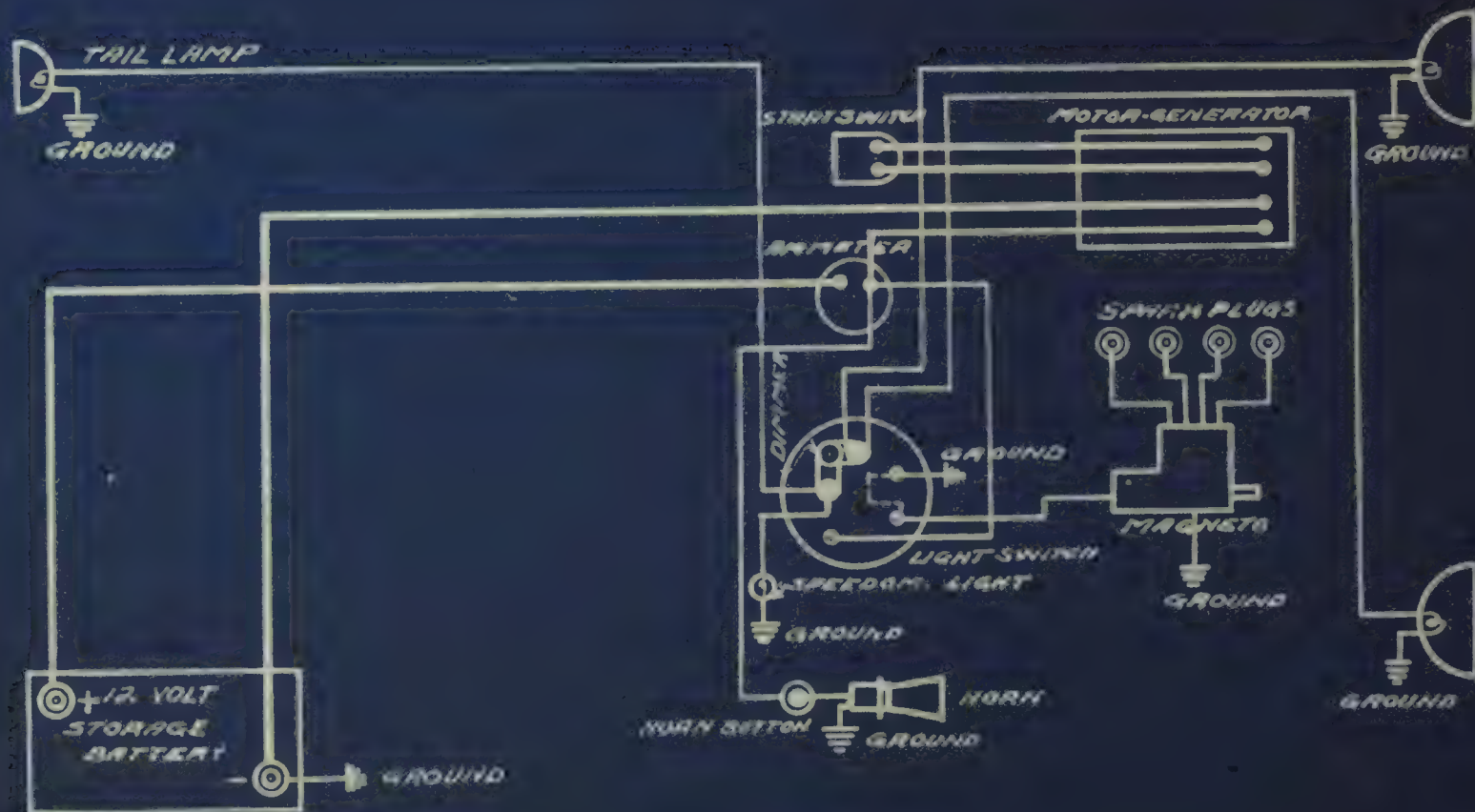
FROM NORTHEAST BULLETIN NO. 34





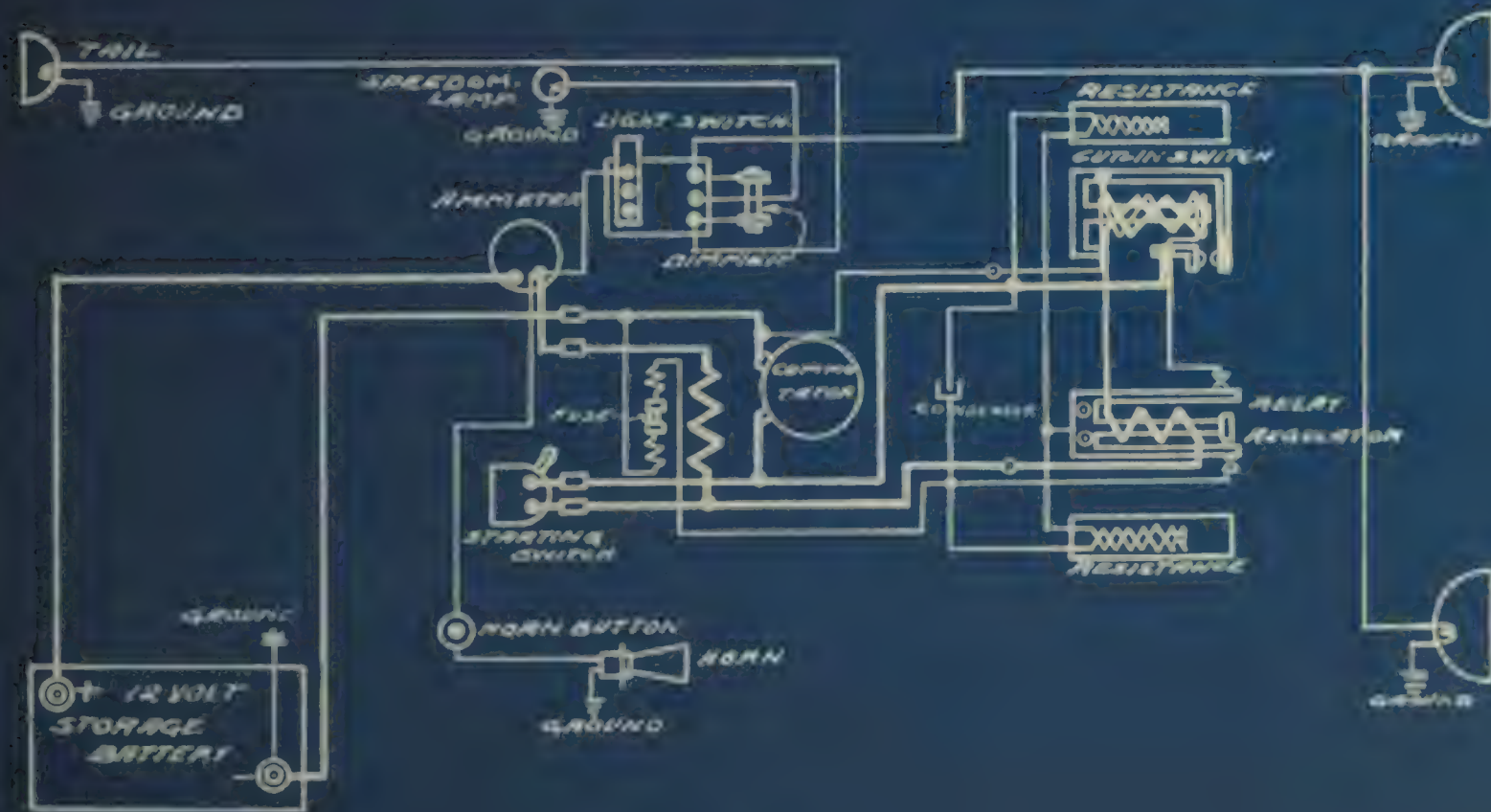
**DODGE 1916**  
NORTH-EAST SYSTEM

FROM DODGE BLUE PRINT C-4983



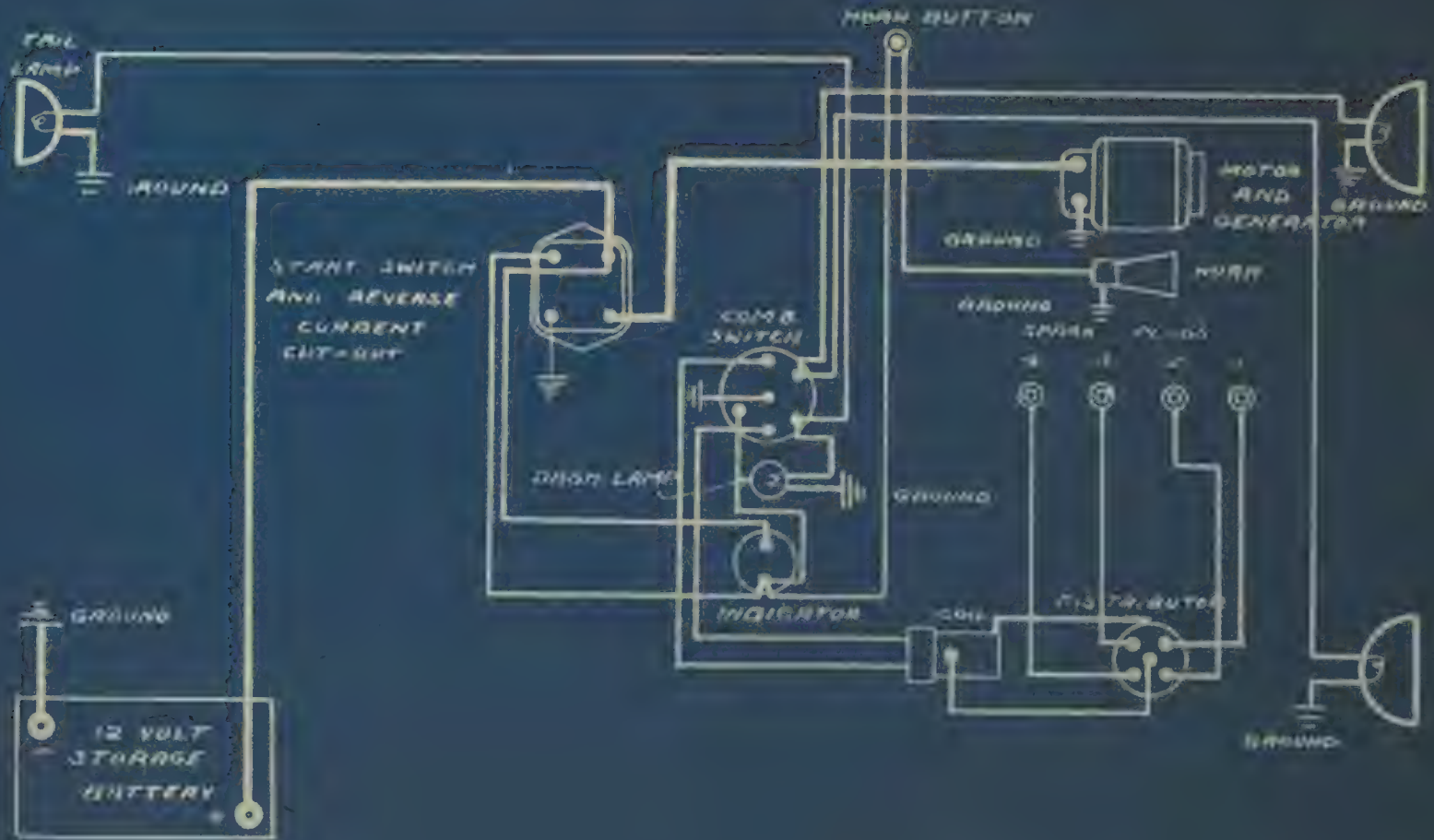
# DODGE 1916 NORTH-EAST INTERNAL DIAGRAM

FROM DODGE BLUE PRINT



DODGE MODEL 30 1917-1918-1919  
NORTHEAST SYSTEM

FROM MOTOR UNIT ON



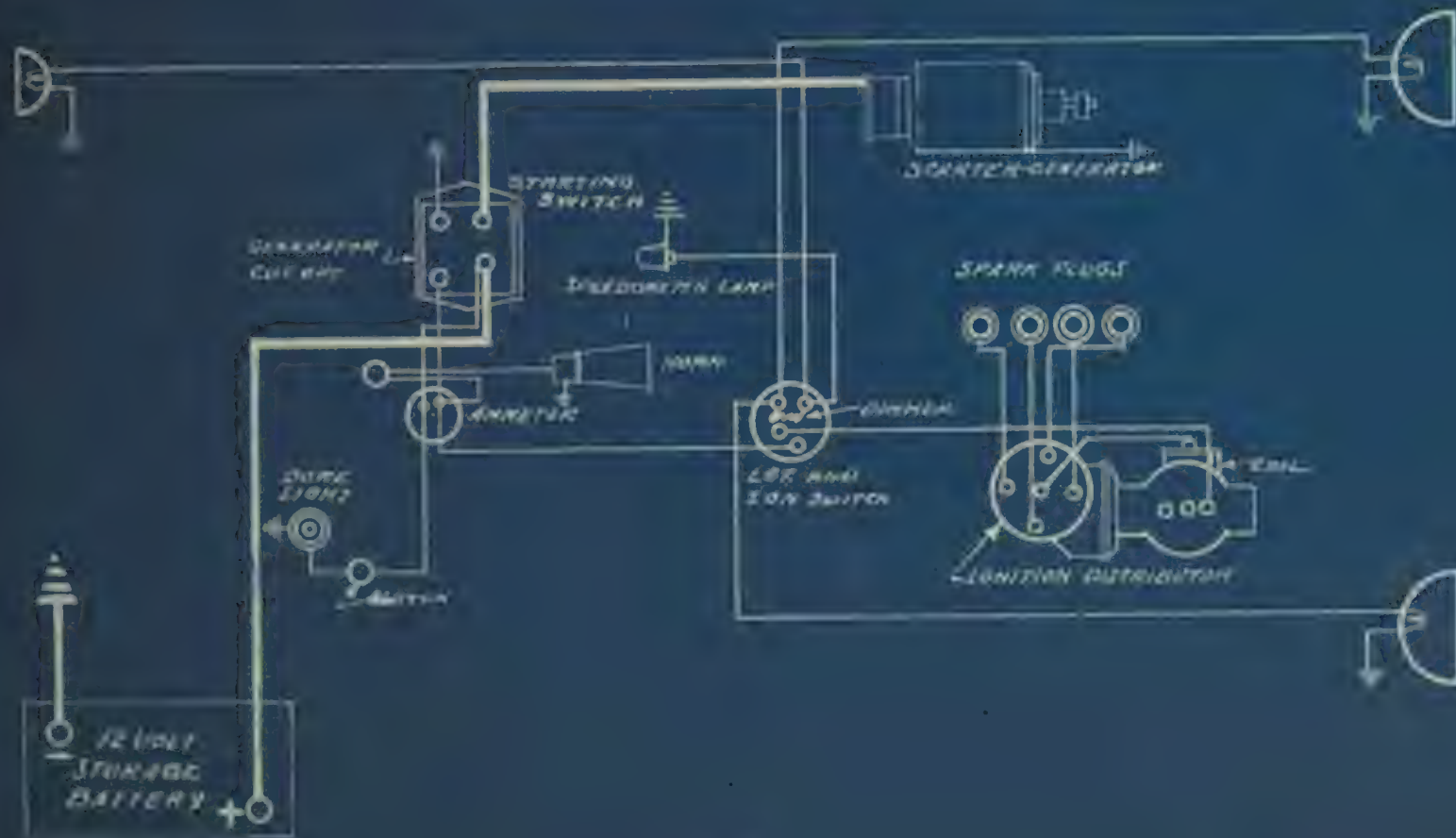
Automotive Electrical Co.  
1111 N. 1st St.  
Milwaukee, Wis.



# DODGE 1920

## NORTH-EAST SYSTEM

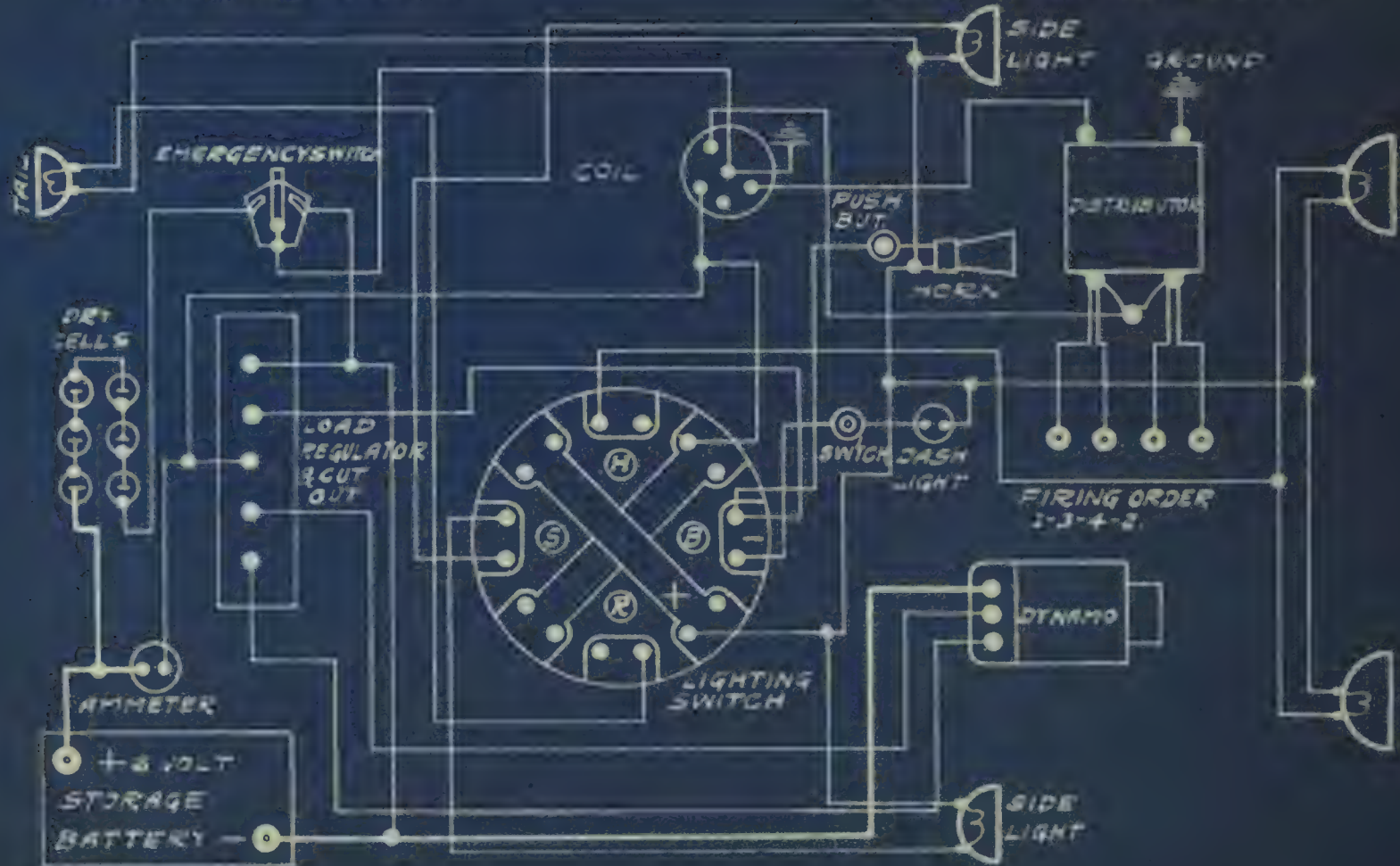
Wiring Diagram D.R. 419101



# DORRIS 1913 "H"

WESTINGHOUSE SYSTEM

FROM WEST. B. P. NO. 1860-1-2-3.

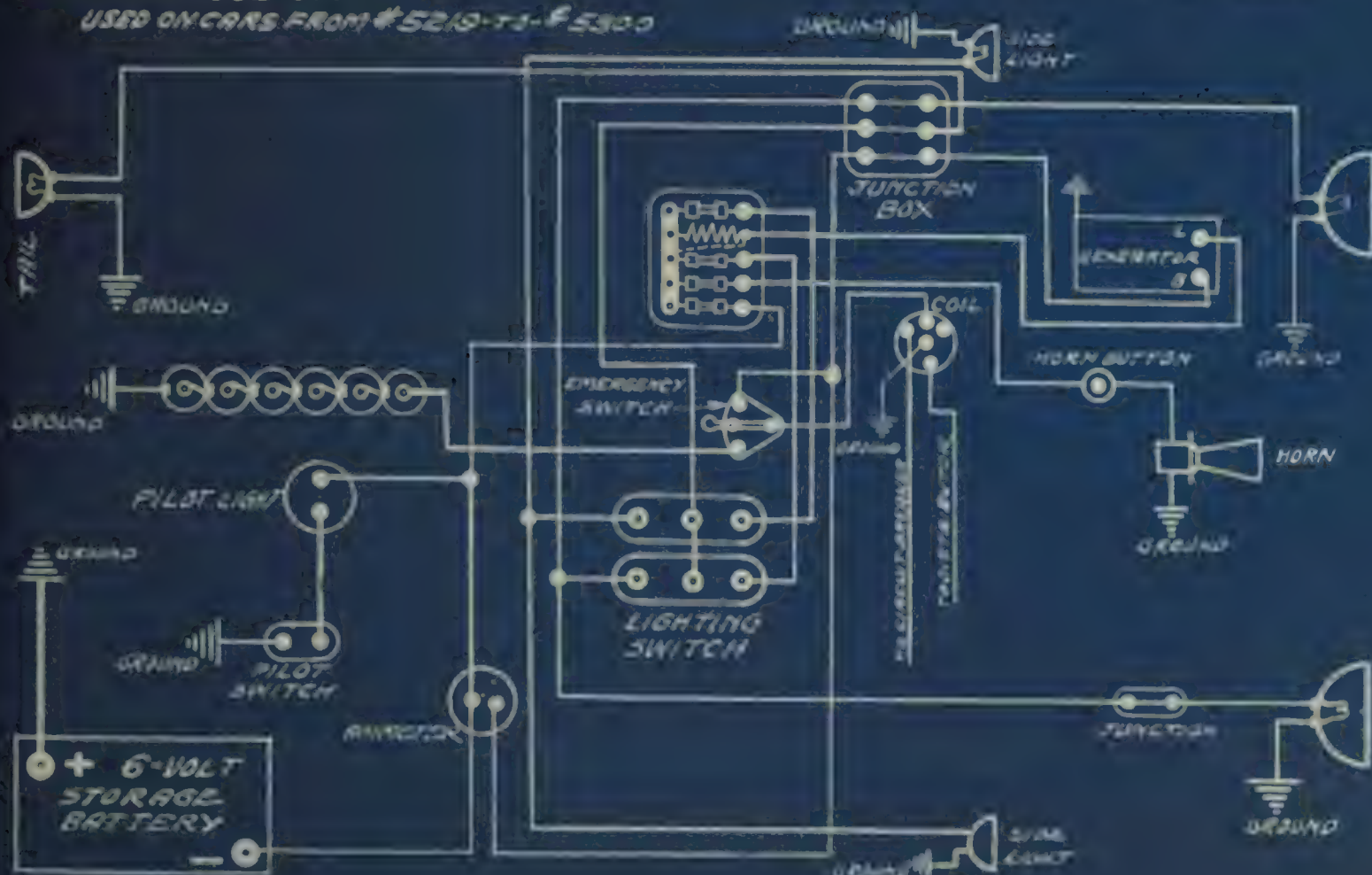


# DORRIS 1913-1914 MODEL "H"

WESTINGHOUSE SYSTEM

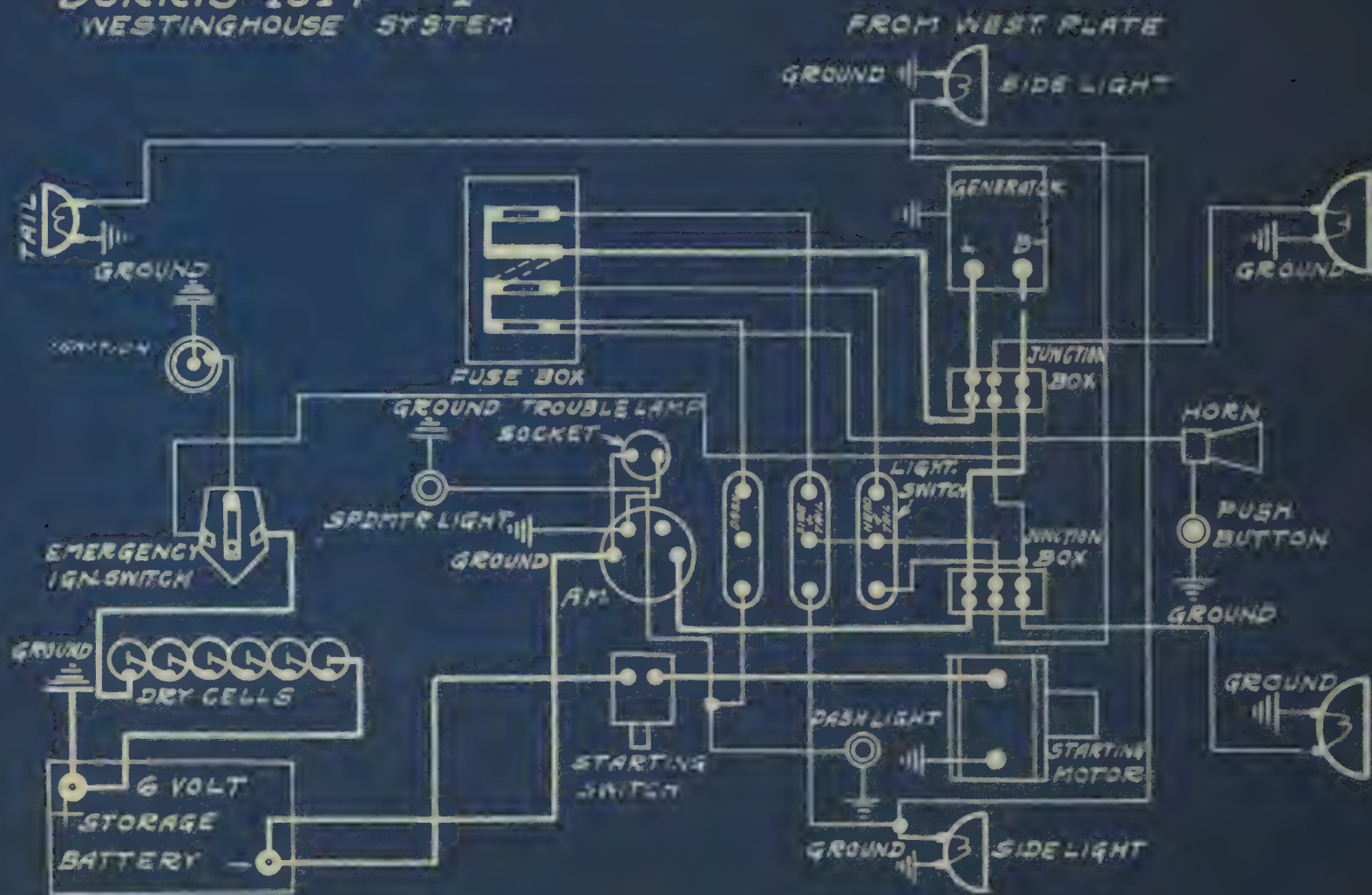
USED ON CARS FROM #5219-TO-#5300

FROM REFR. BY 3080

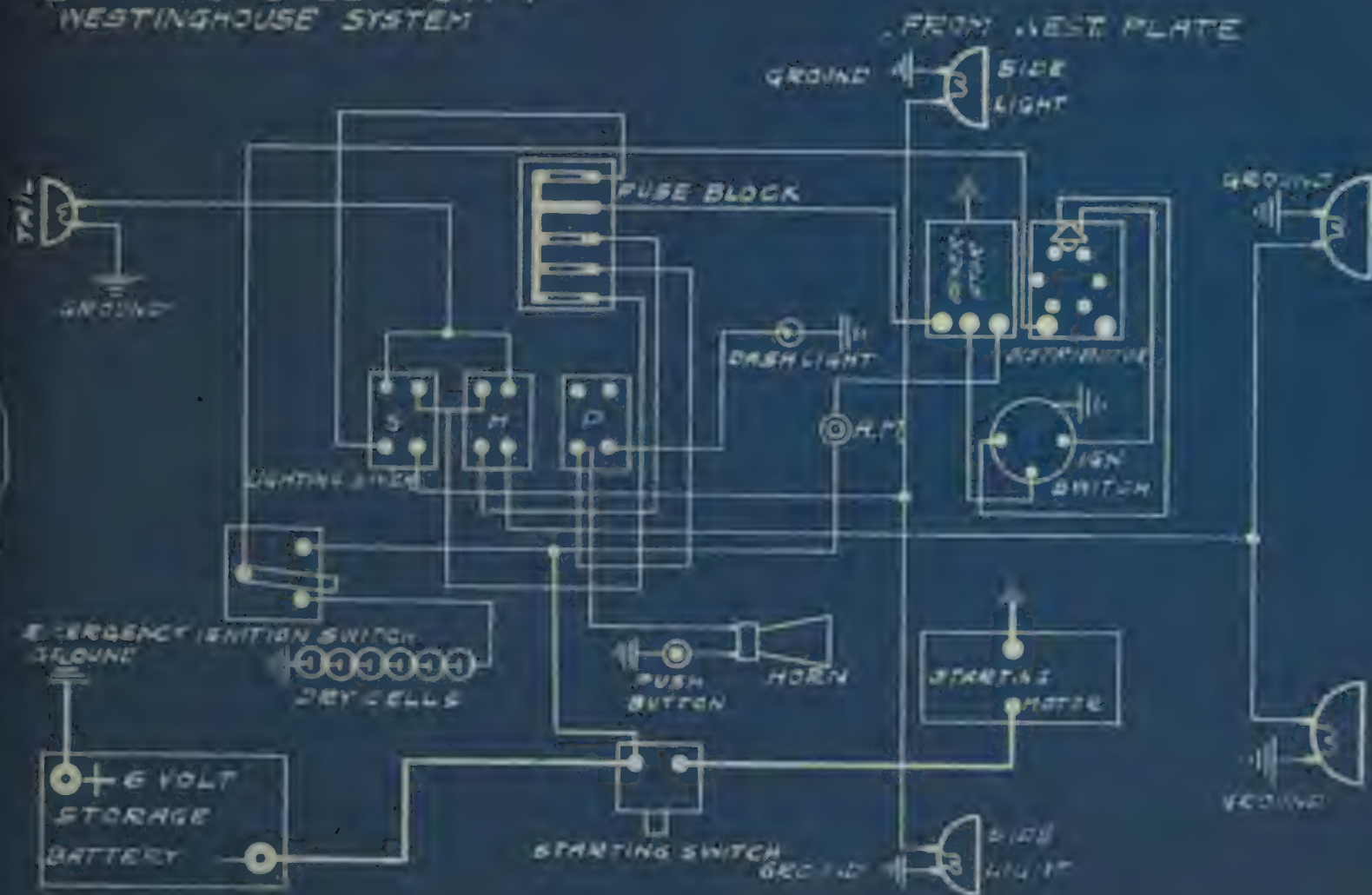




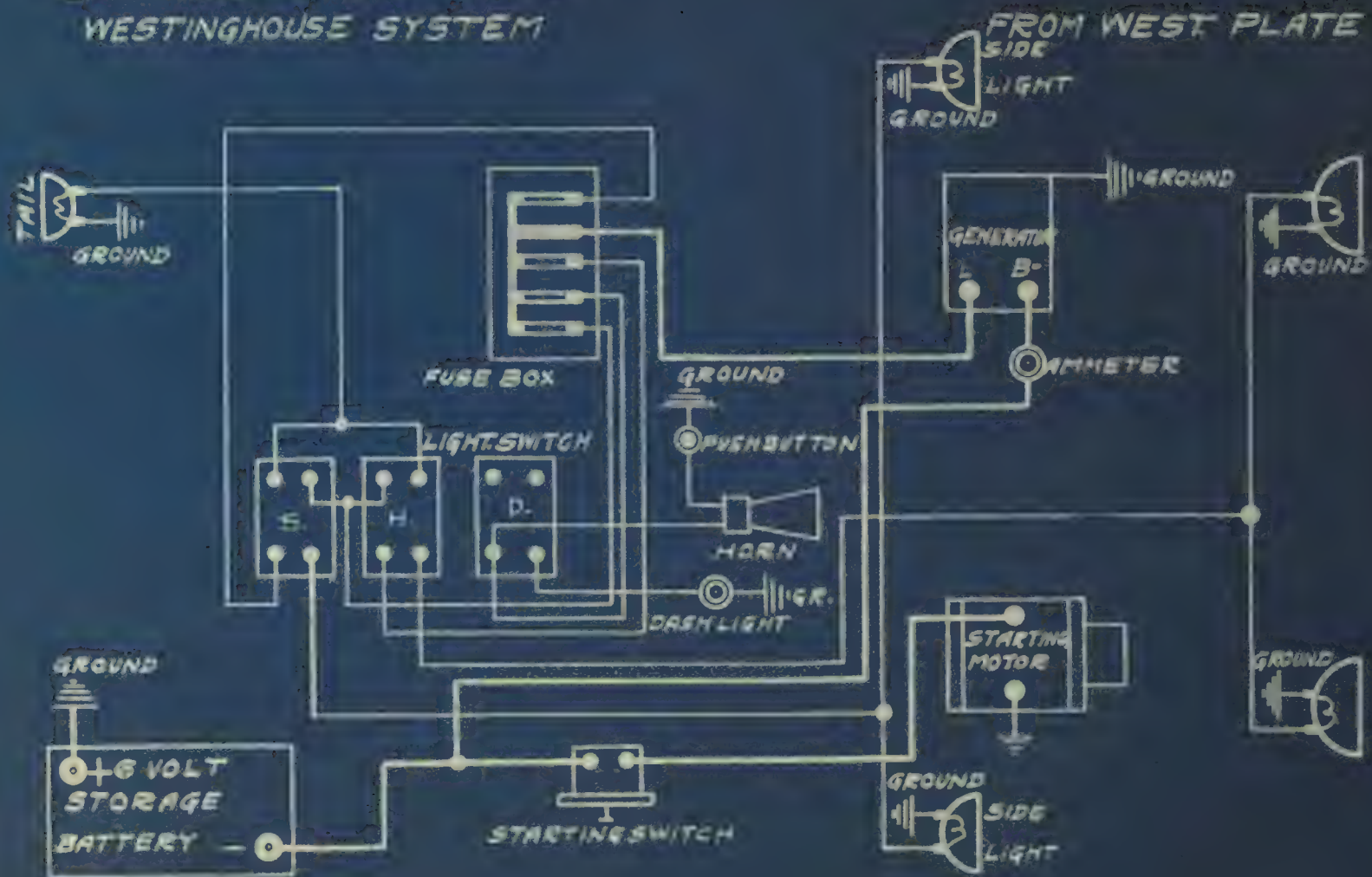
DORRIS 1914 "I"  
WESTINGHOUSE SYSTEM



# DORRIS 1915 "I-A-4" WESTINGHOUSE SYSTEM

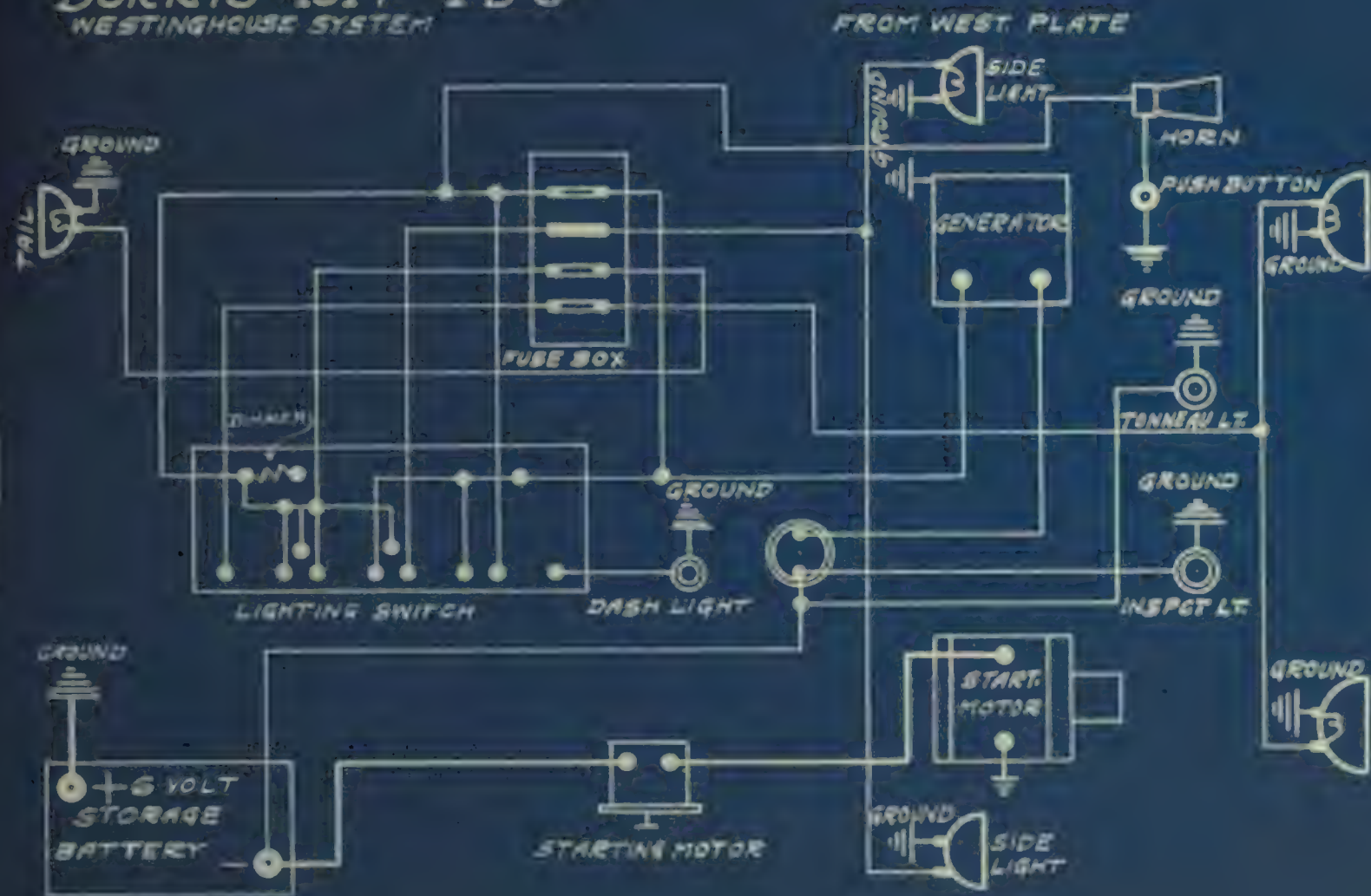


# DORRIS 1916 "I-A-6" WESTINGHOUSE SYSTEM





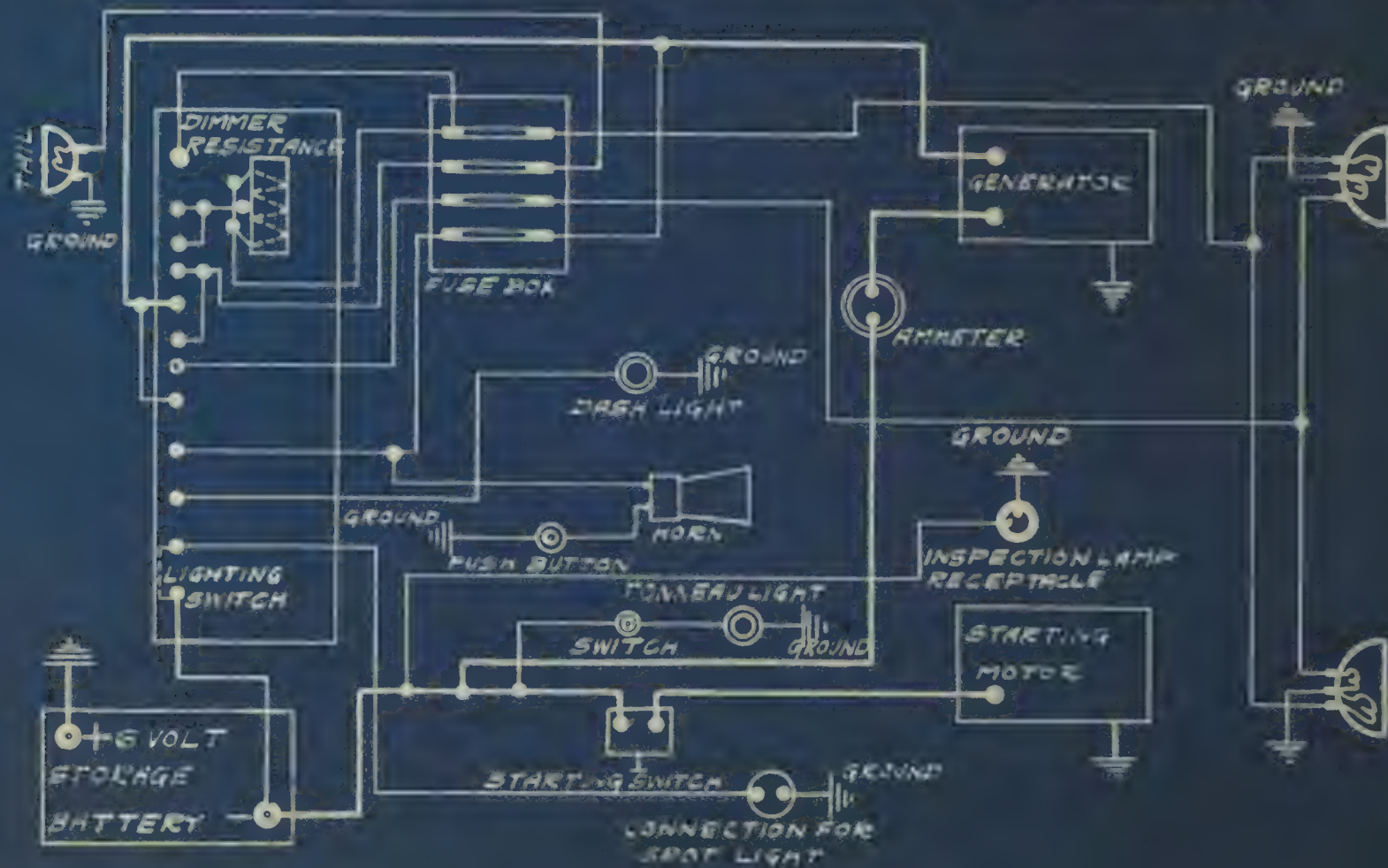
# DORRIS 1917 "I-B-6" WESTINGHOUSE SYSTEM



# DORRIS 1918 I-C-6 - 1919 EARLY MODELS

WESTINGHOUSE SYSTEM

FROM DORRIS BR 57/5



# DORRIS MODEL K-4 1919

WESTINGHOUSE SYSTEM

BOSCH MAGNETO IGNITION

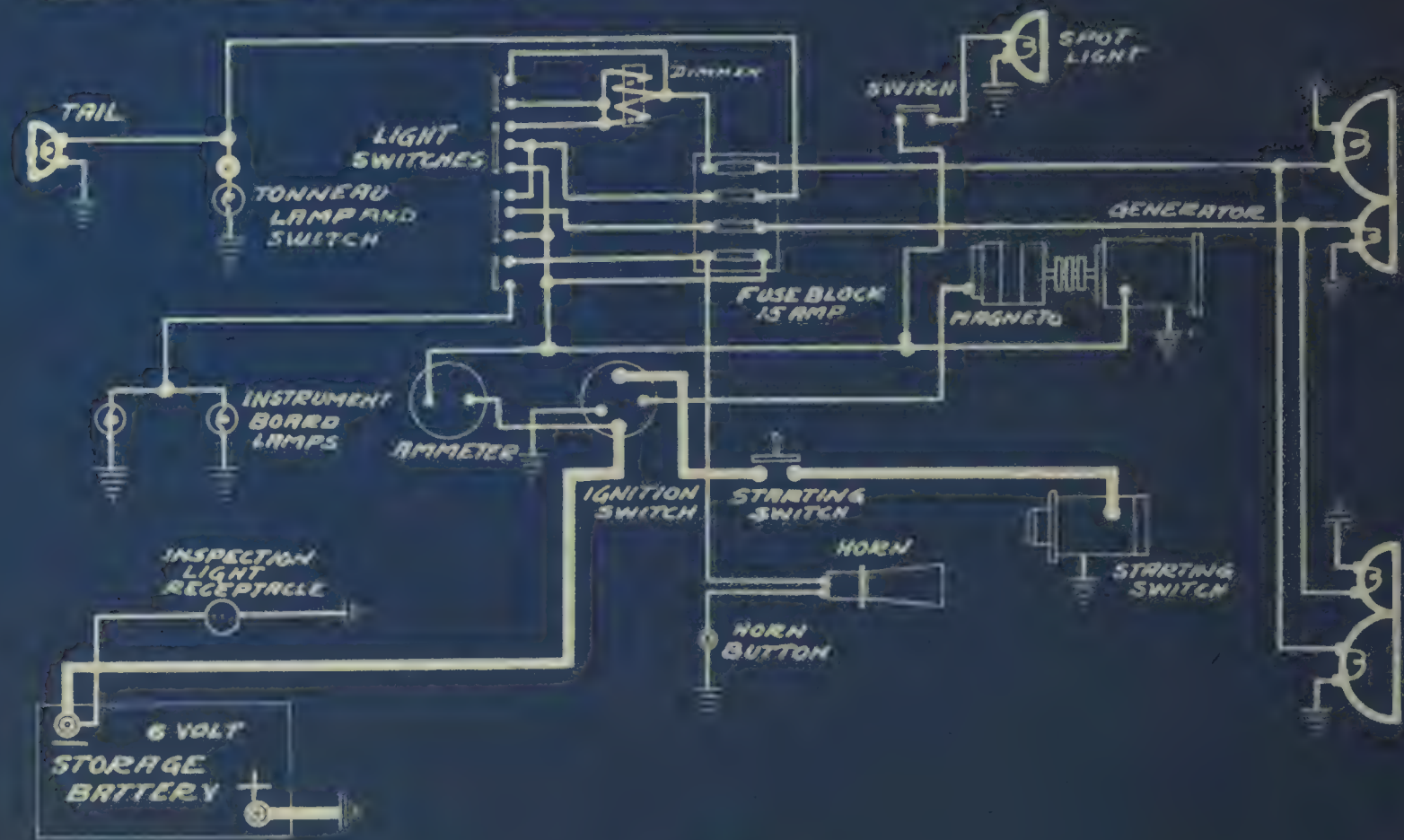
FRONT VIEW OF THE





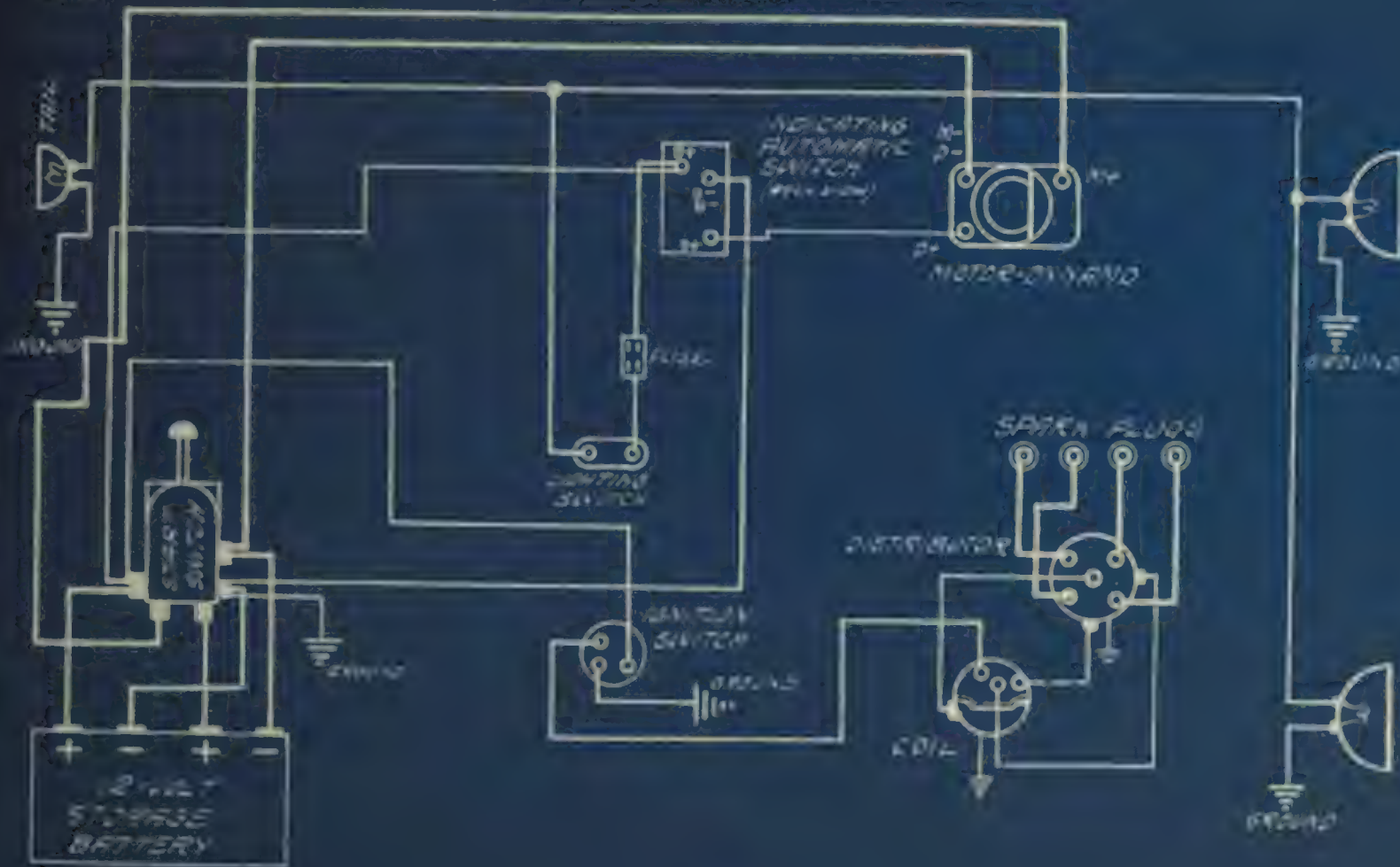
WESTINGHOUSE STARTING AND LIGHTING  
BOSCH MAGNETO IGNITION

PAID BY THE AIR FORCE



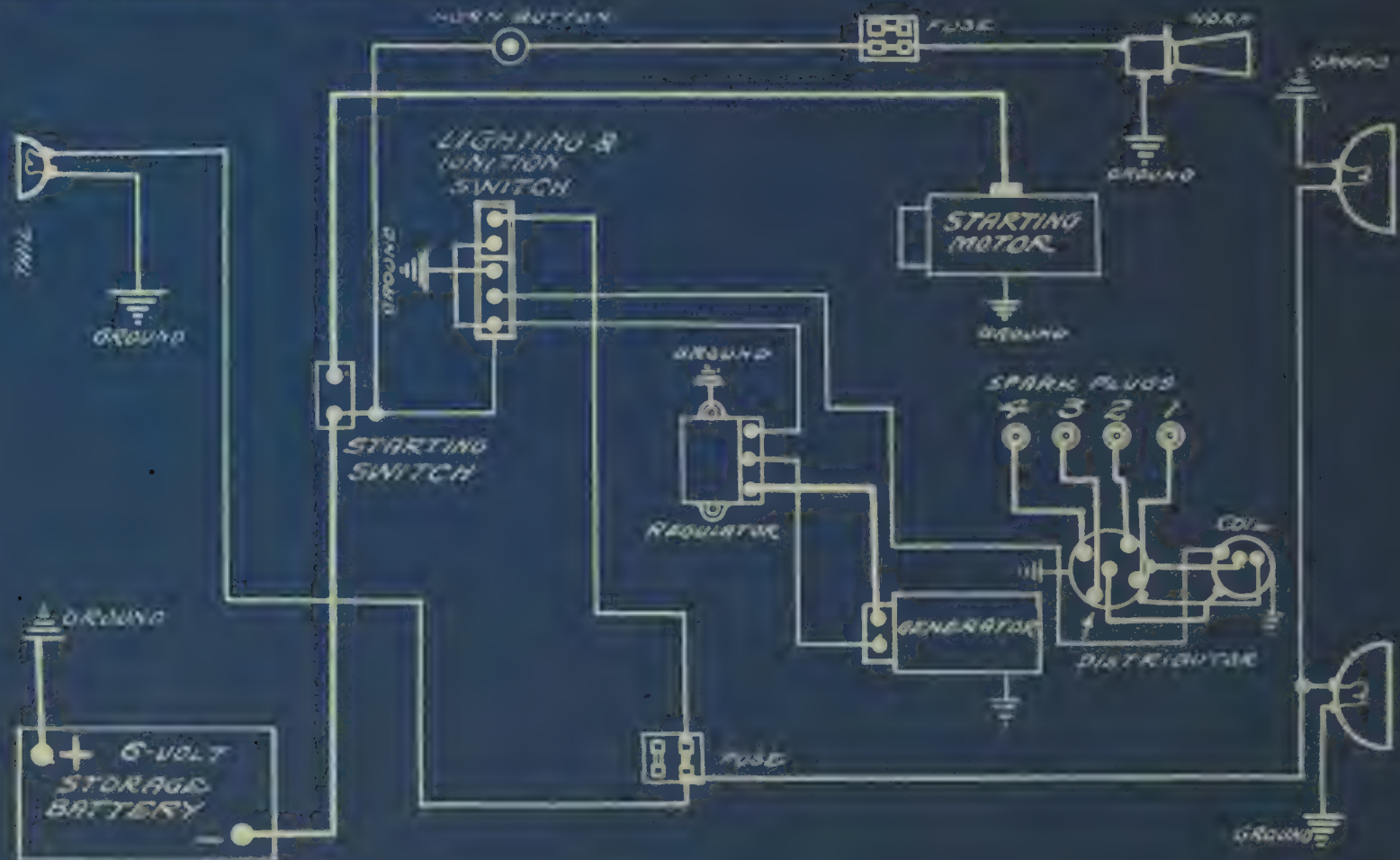
# DORT 1916 "4 & 5" SPLITDORF-APELCO SYSTEM

FROM SPLIT-AP MANUAL



# DORT 1916 "5" WESTINGHOUSE SYSTEM

FROM DORT MANUAL





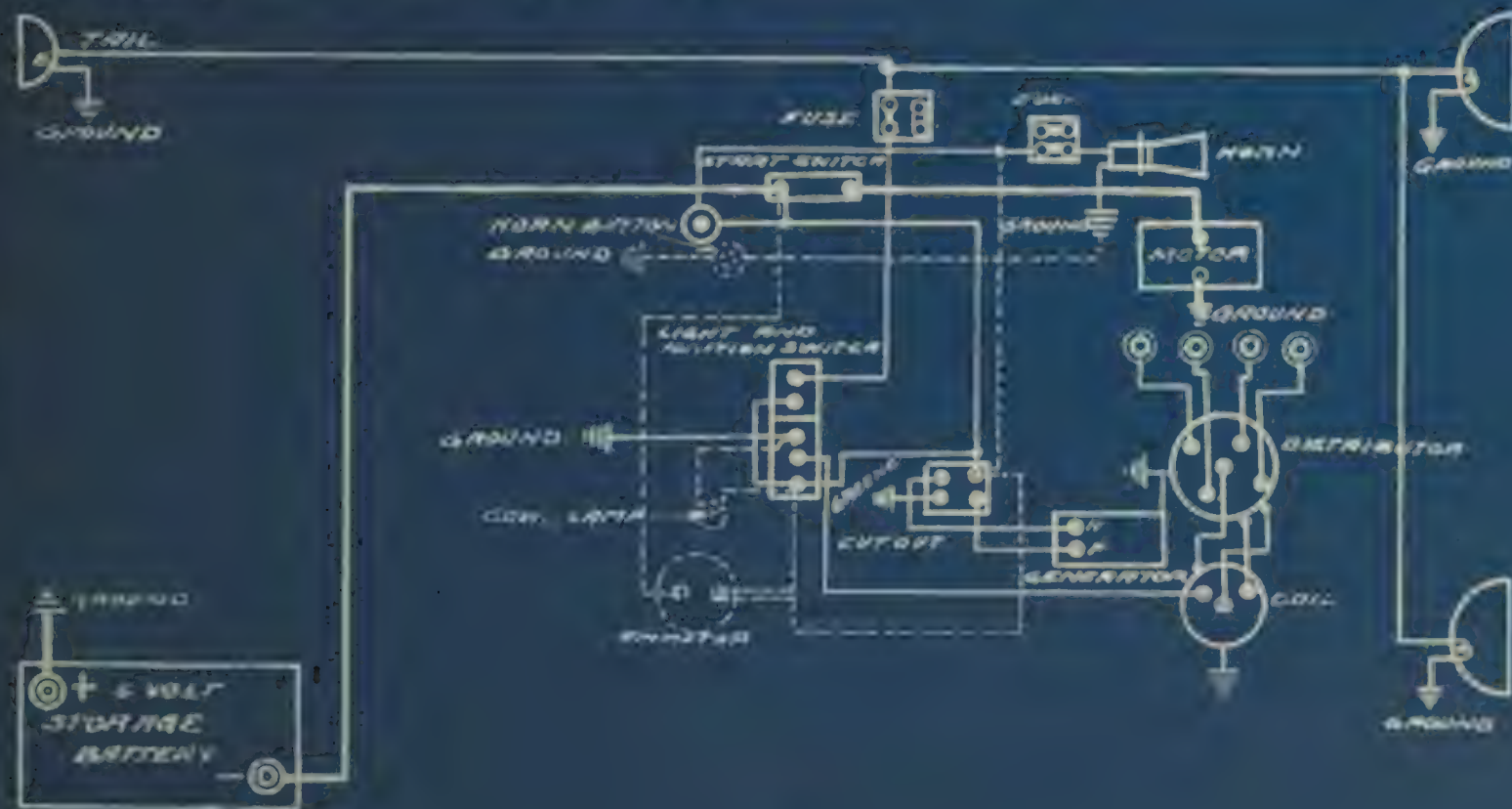
**DORT 1916**

**FROM DORT DIAGRAMS**

**WESTINGHOUSE - WITH AND WITHOUT AMMETER**

**NOTE:-**

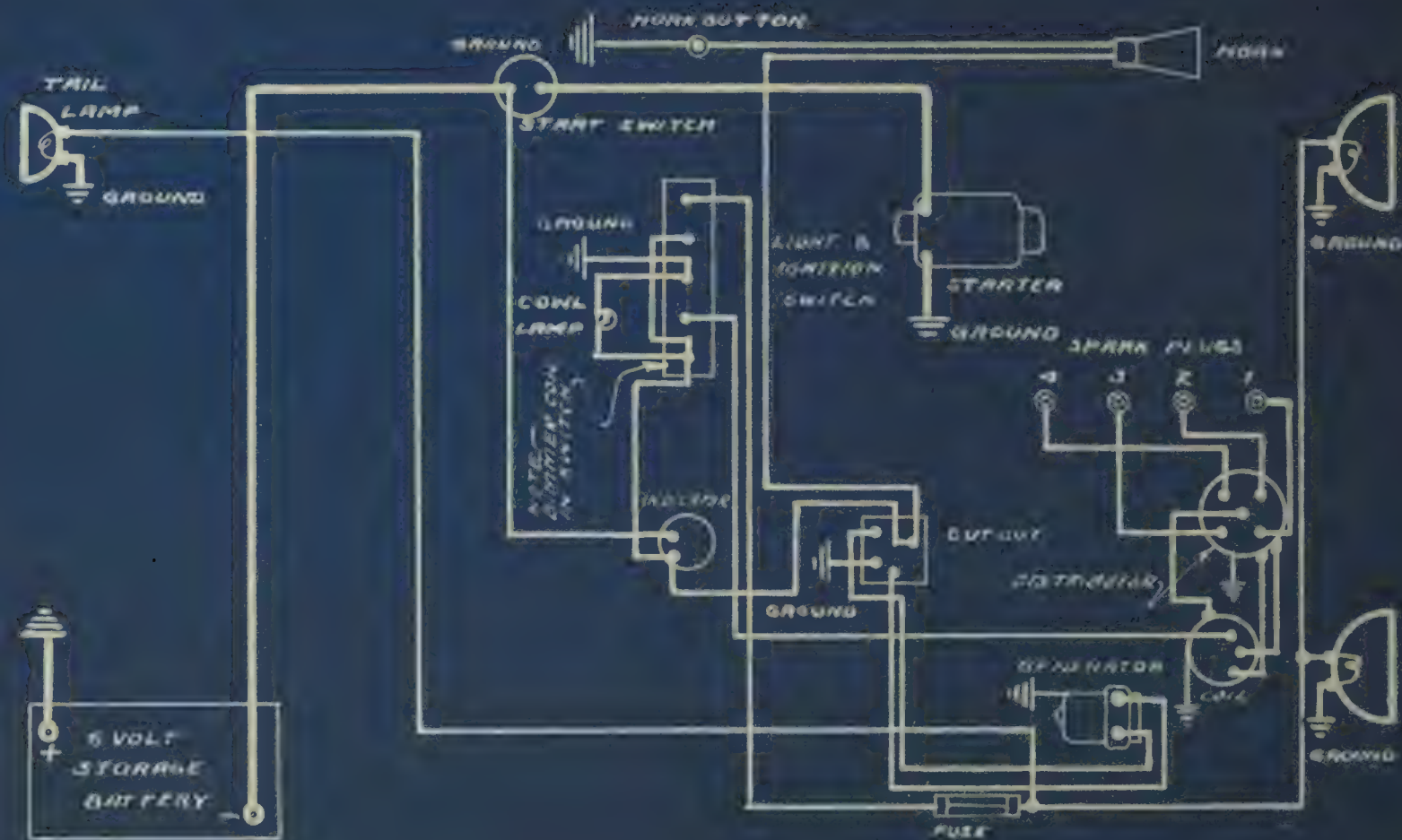
SOLID LINES SHOW CONNECTIONS WHEN  
 AMMETER IS NOT USED. DOTTED LINES  
 SHOW CONNECTIONS WHEN AMMETER  
 IS USED.



# DORT MODEL 9 1917

WESTINGHOUSE SYSTEM

FROM WEST B.R.

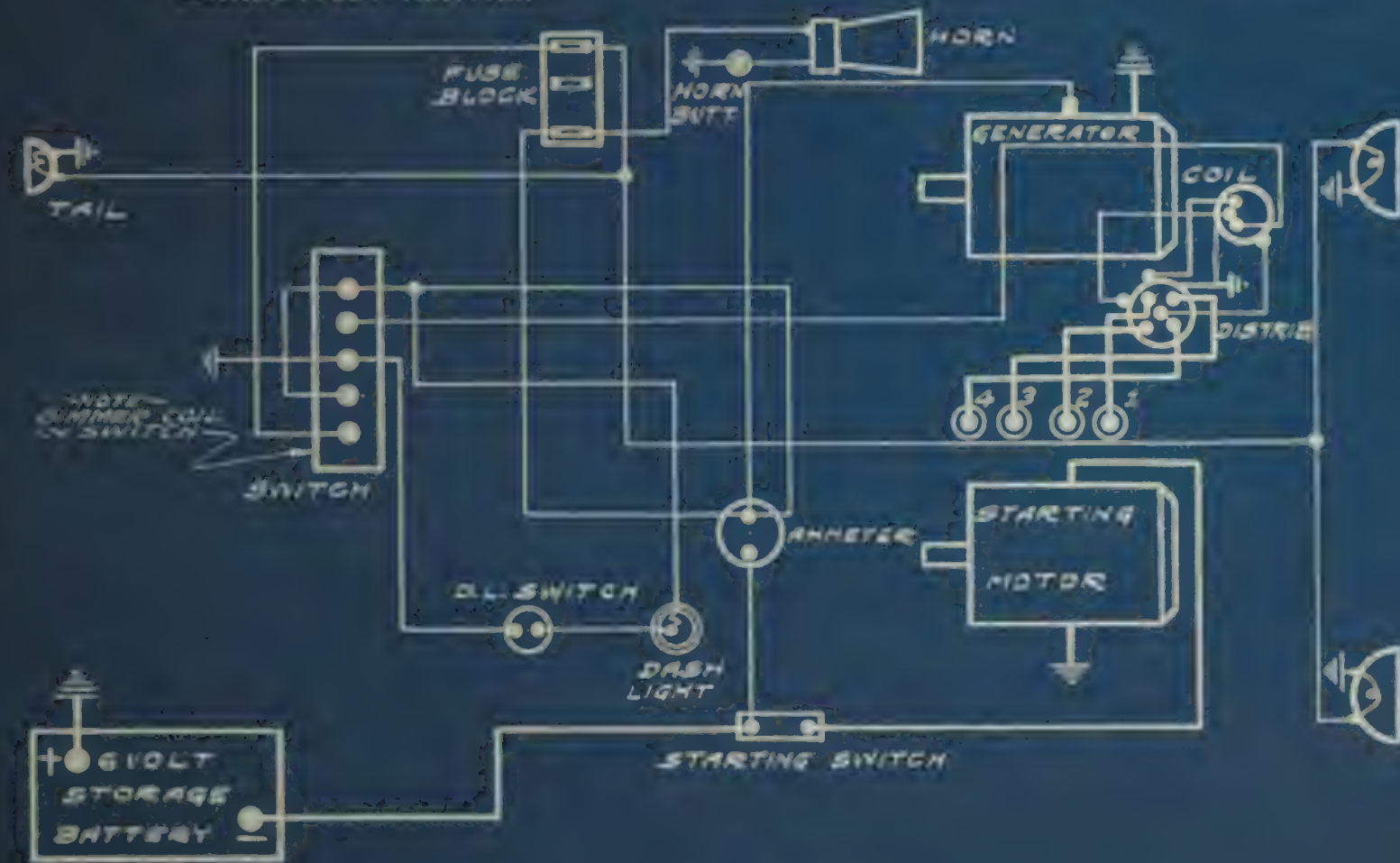


AUTOMOTIVE PUBLISHING CO.  
PUBLISHED IN U.S.A.

# DORT 1918-1919.

WESTINGHOUSE SYSTEM  
CONNECTICUT IGNITION

FROM DORT INST. BOOK

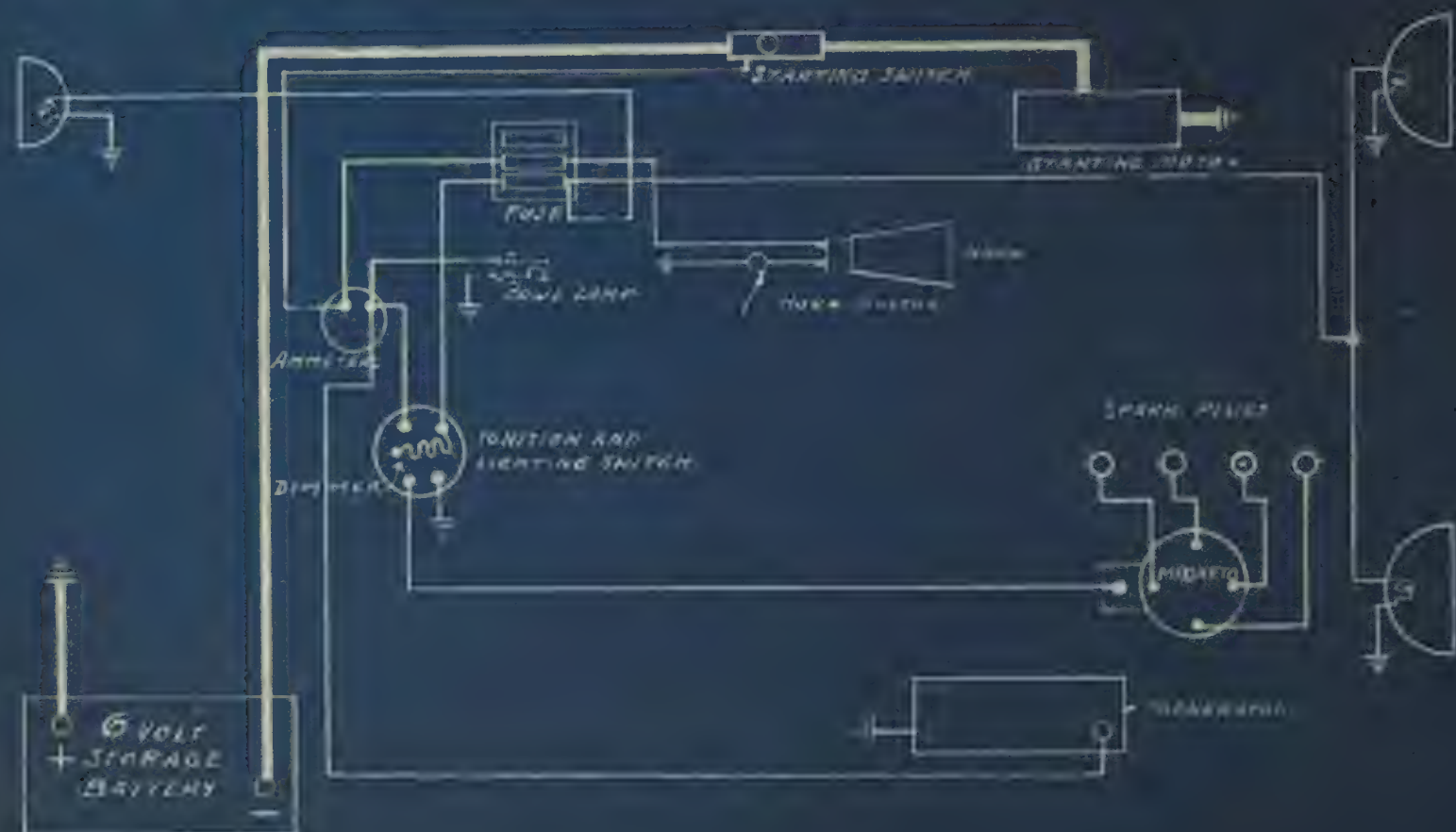




# DORT MODEL 39 - 1920

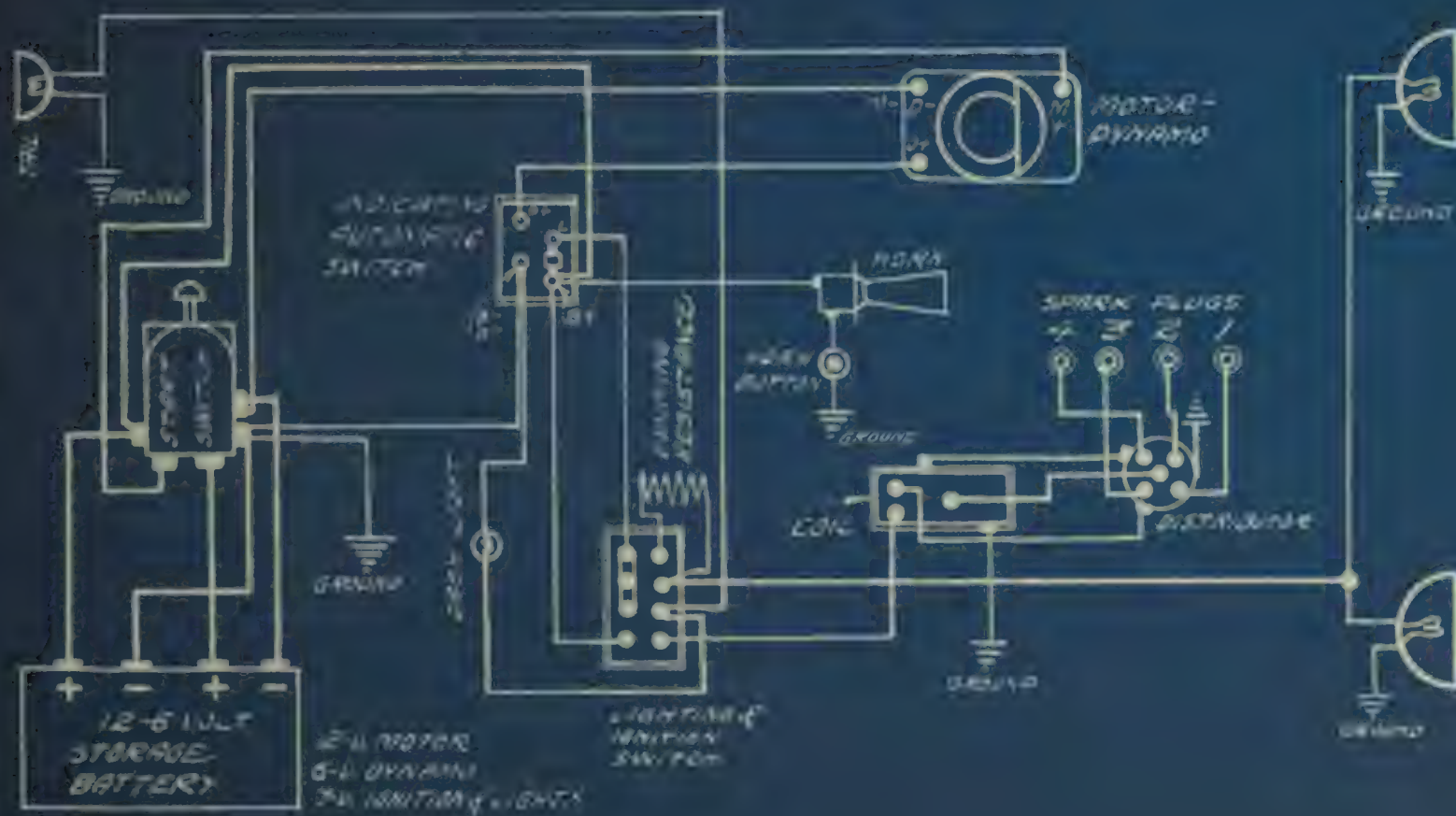
WESTINGHOUSE STARTING & LIGHTING.  
BOSCH MAG. IGN.

PLANT AFFLID N° 39 - 1920



# ELCAR 1916 SPLITDORA-APELCO SYSTEM

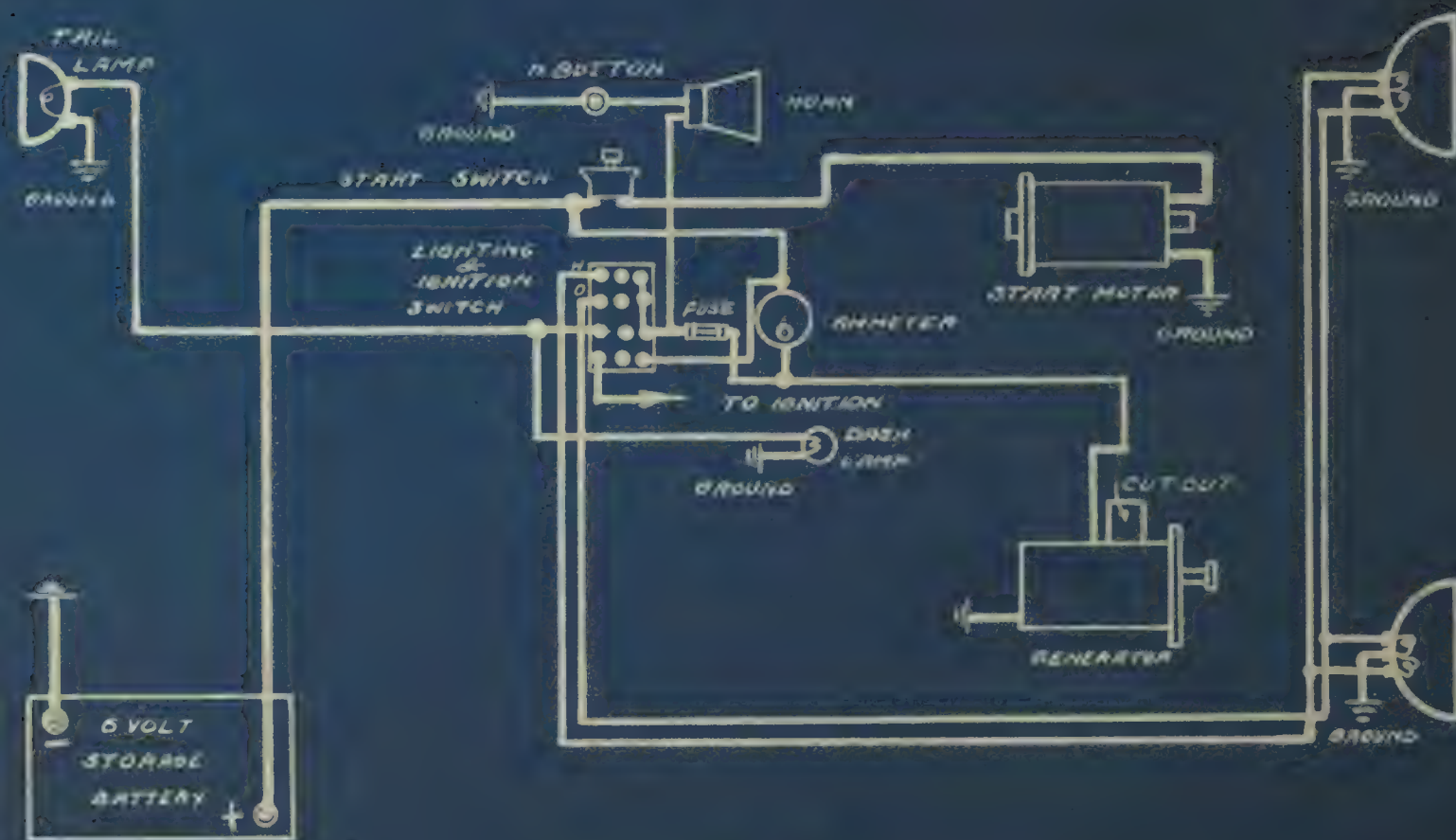
FROM SPLIT-AP MANUAL



# ELCAR MODELS - D-E-F & G 1917-1918-1919

DYNETO SYSTEM

WASH. H. F. S. 11525 Bk.



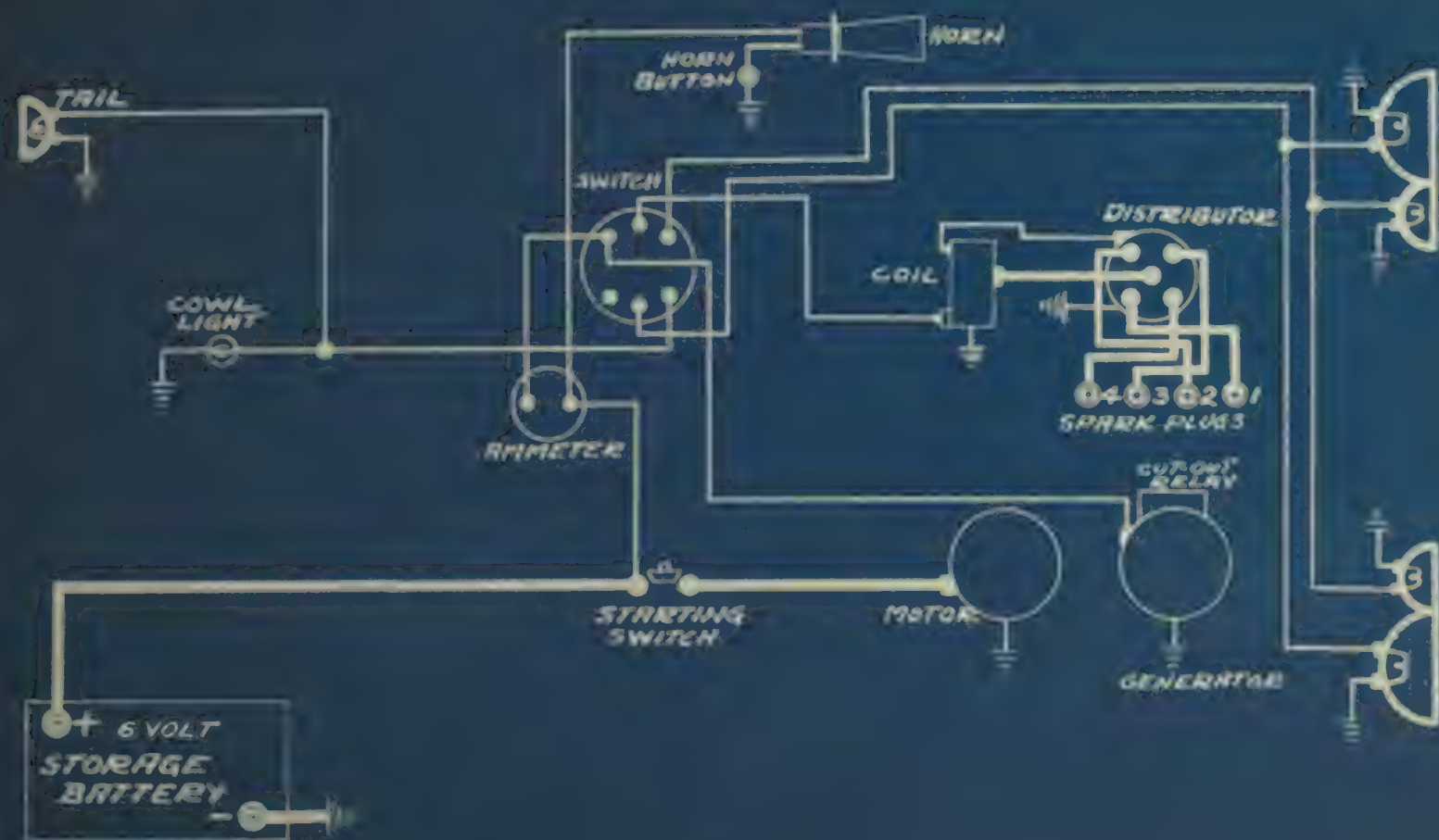
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# ELCAR K-4 1920

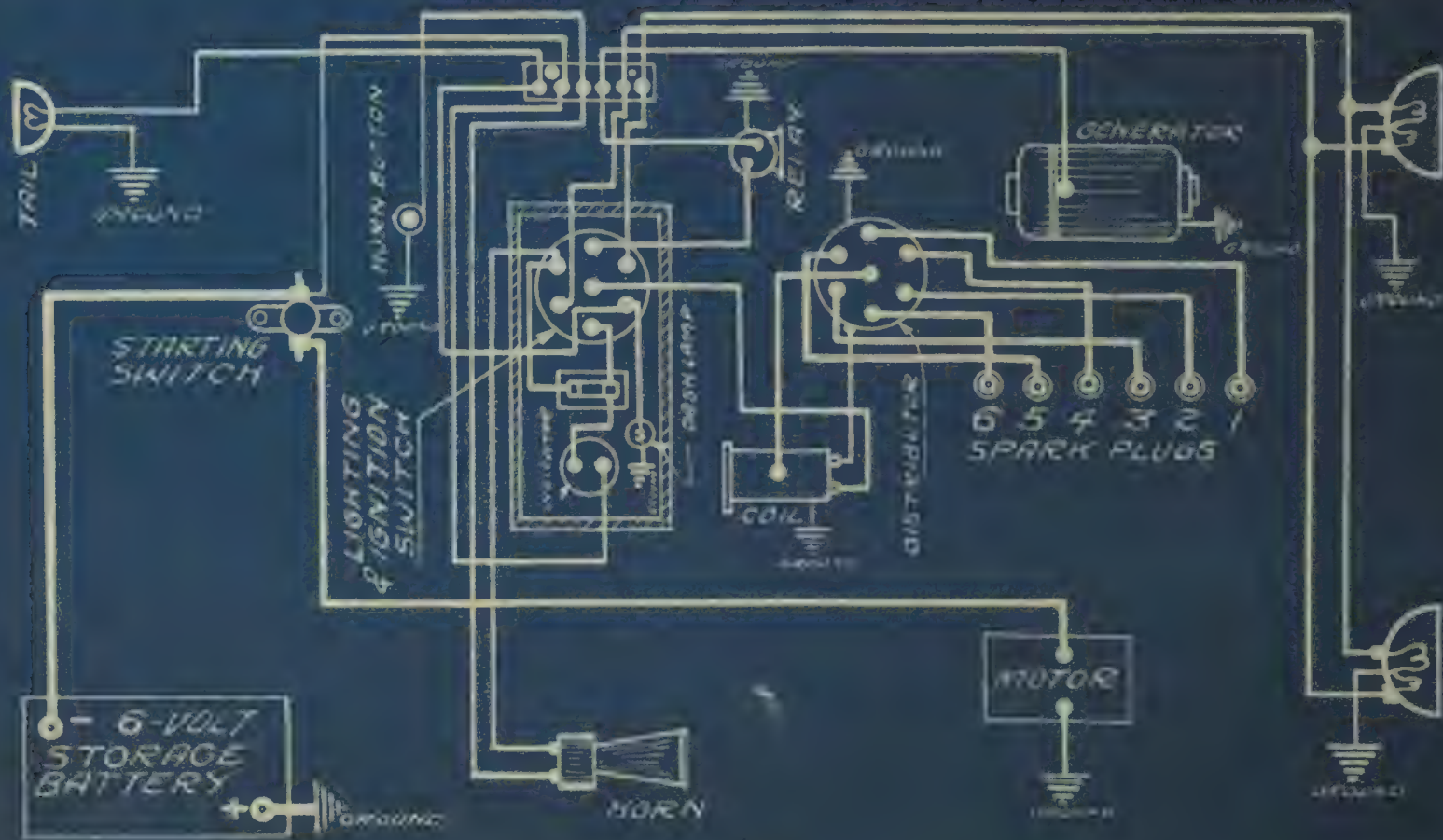
## DELCO STARTING-LIGHTING AND IGNITION

FROM FIGURE 3 OF 32101



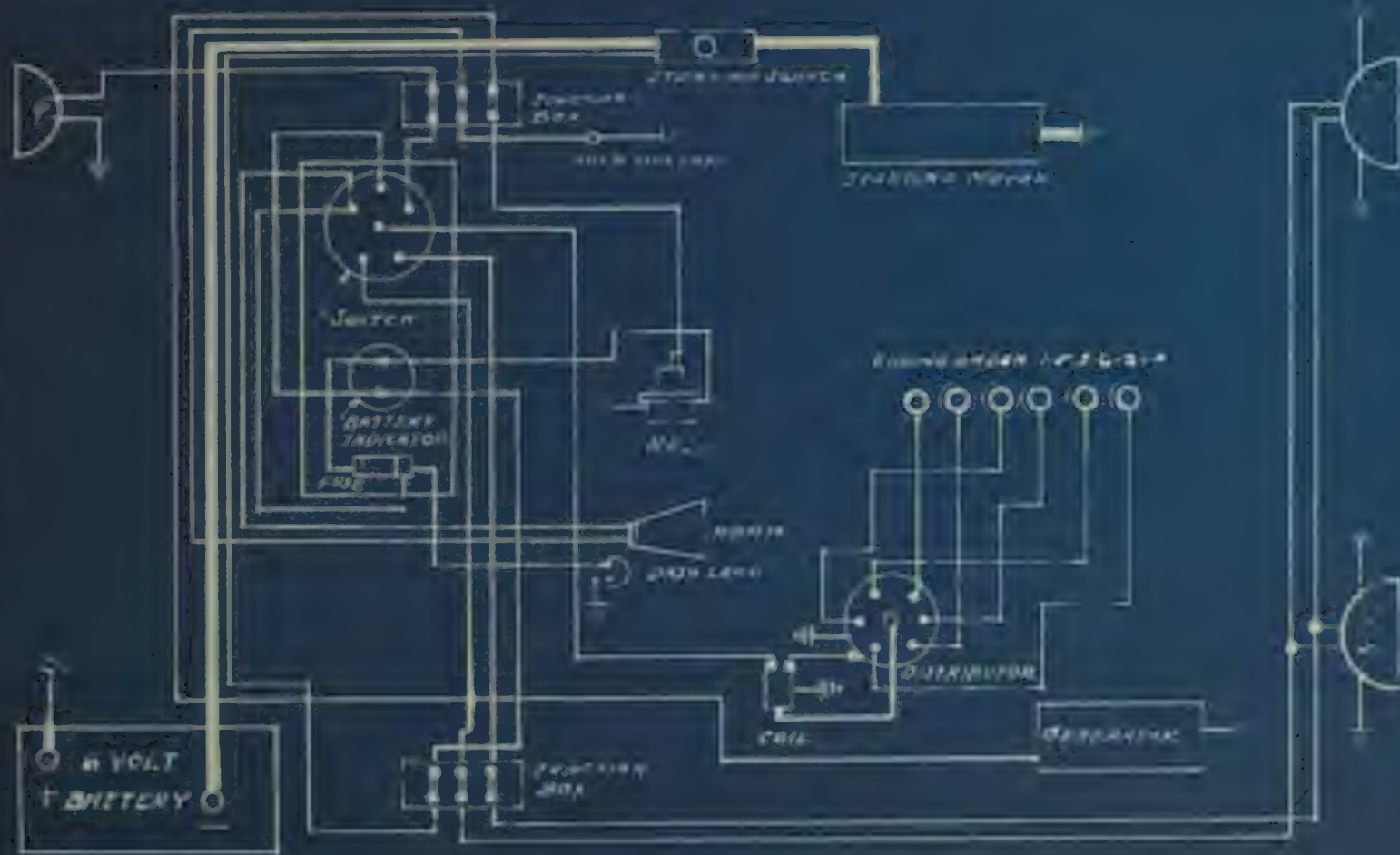
ELGIN 1917-1918 "6" 1319 "H"  
 WAGNER STARTING & LIGHTING SYSTEM  
 REMY IGNITION SYSTEM

FROM ELGIN INST. BOOK



# ELGIN MODEL "H" 1920 WAGNER SYSTEM

RENTON, PA. 19357

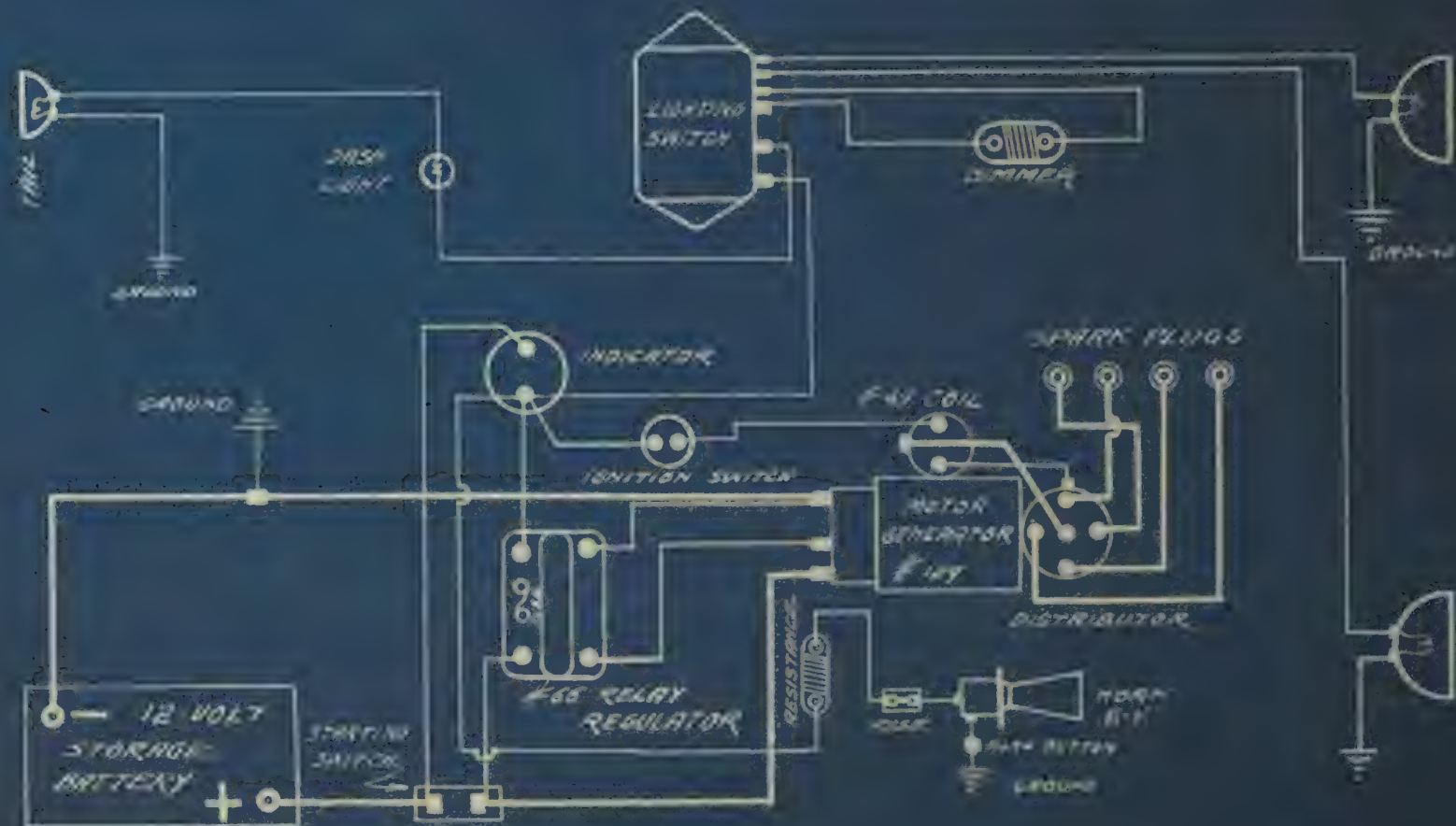




# EMPIRE 1915 MODEL 31-40

## REMY SYSTEM (SEPARATE LIGHTING & IGNITION SWITCH)

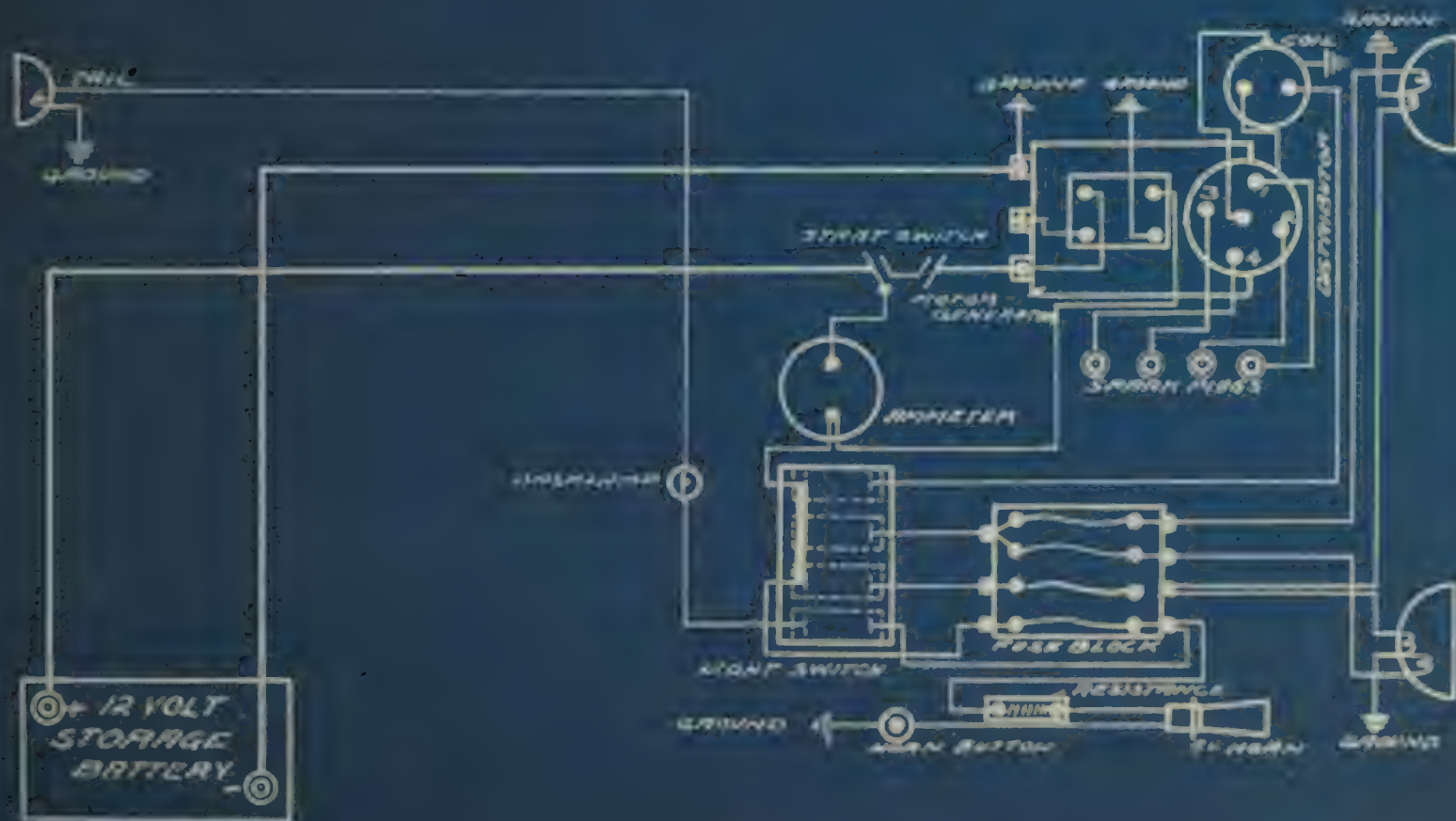
FROM REMY BULK



EMPIRE 1915-16 "33"  
REMY SYSTEM

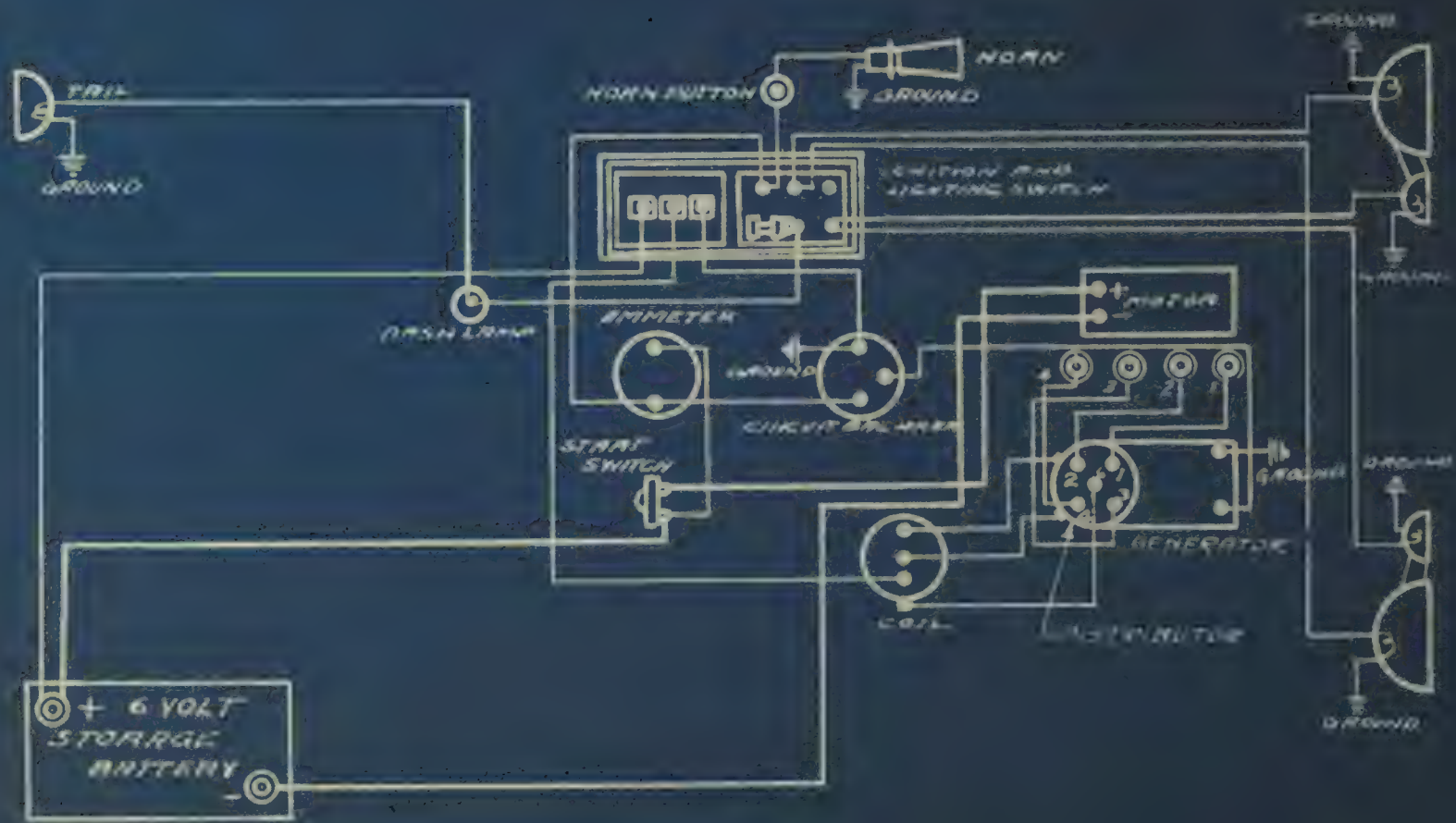
## REMY SYSTEM

FROM EMPLOYE B P 3137



# EMPIRE 1916 40-45 AUTOLITE SYSTEM

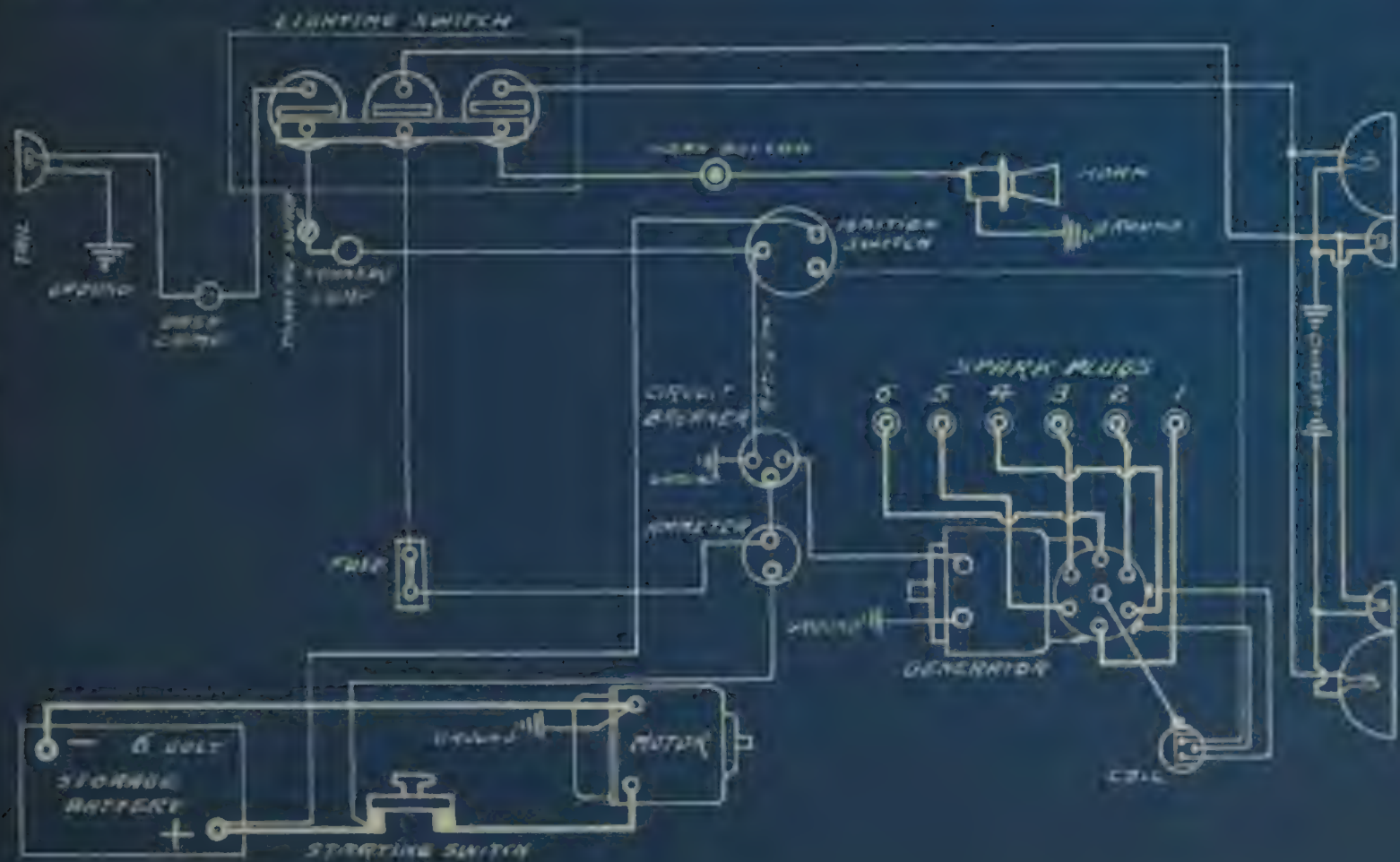
FROM AUTOLITE A.P.





# EMPIRE 1916 MODEL 60 AUTOLITE SYSTEM

FROM AUTOLITE DRAWING

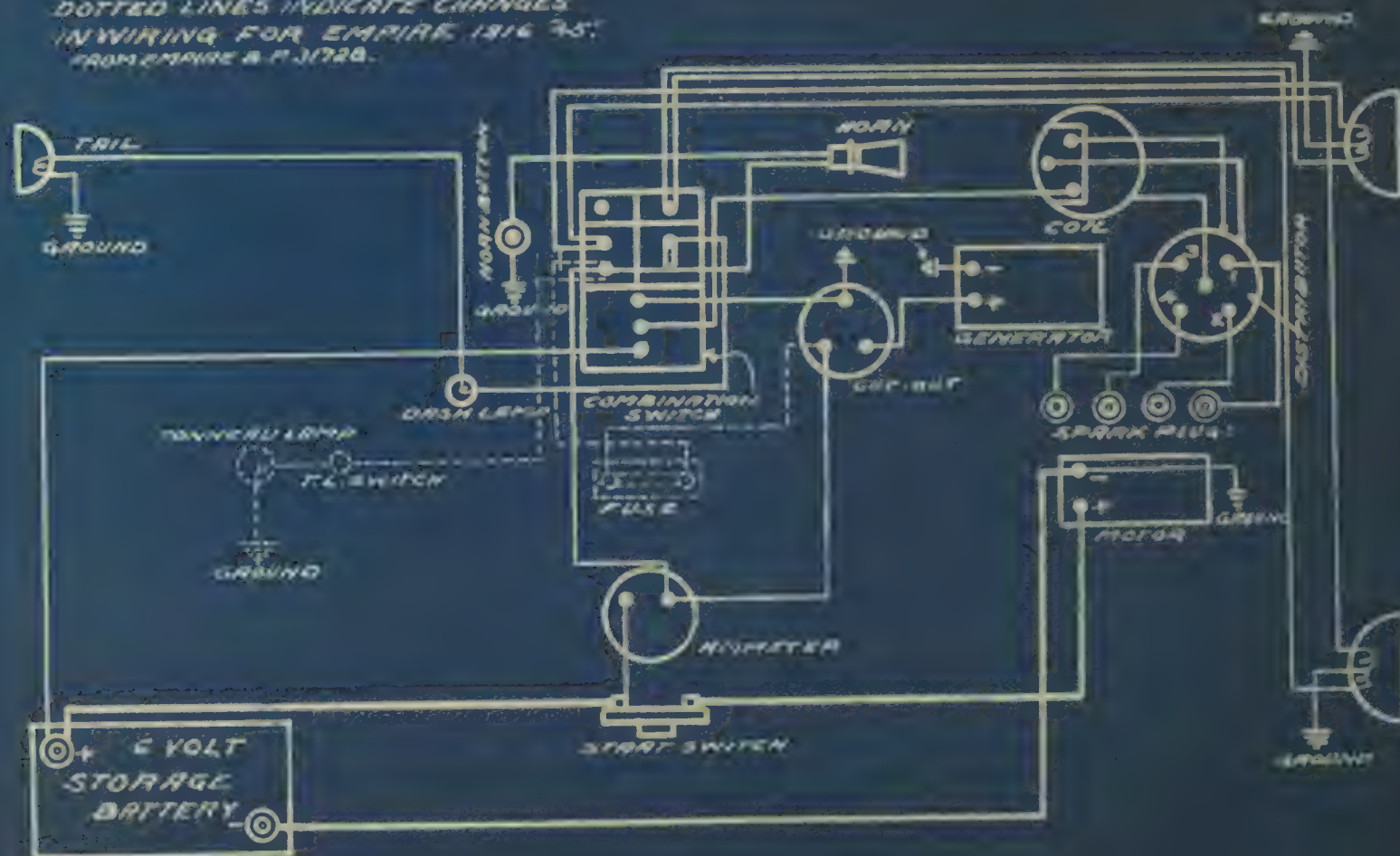


# EMPIRE 1916-17-18 AUTOLITE SYSTEM

45 & 51

FROM EMPIRE A.P. 32863-R

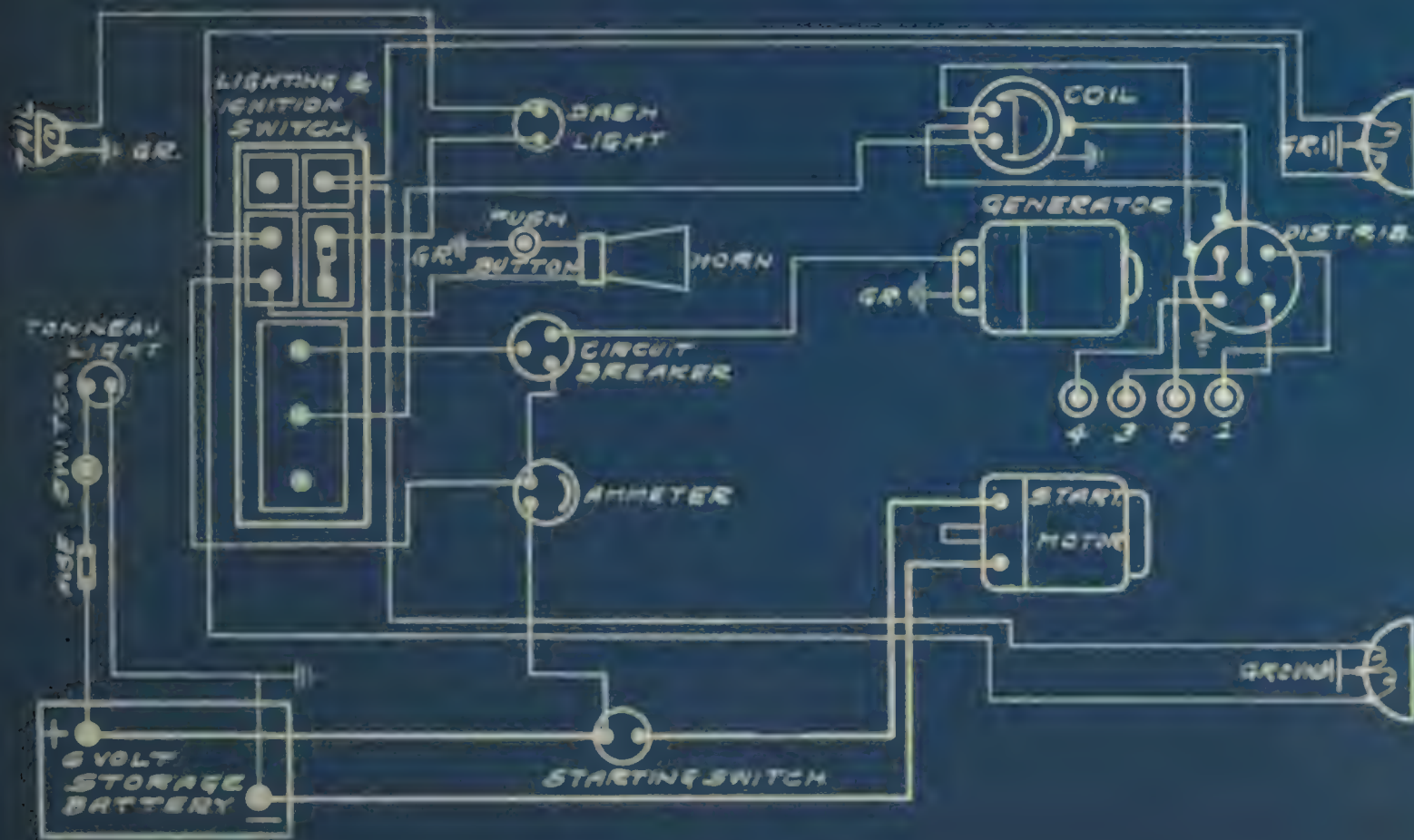
DOTTED LINES INDICATE CHANGES  
IN WIRING FOR EMPIRE 1916-15.  
FROM EMPIRE A.P. 31720.



# EMPIRE 1917-18-50-70-70A- 1919

AUTOLITE SYSTEM - CONN.IGN.

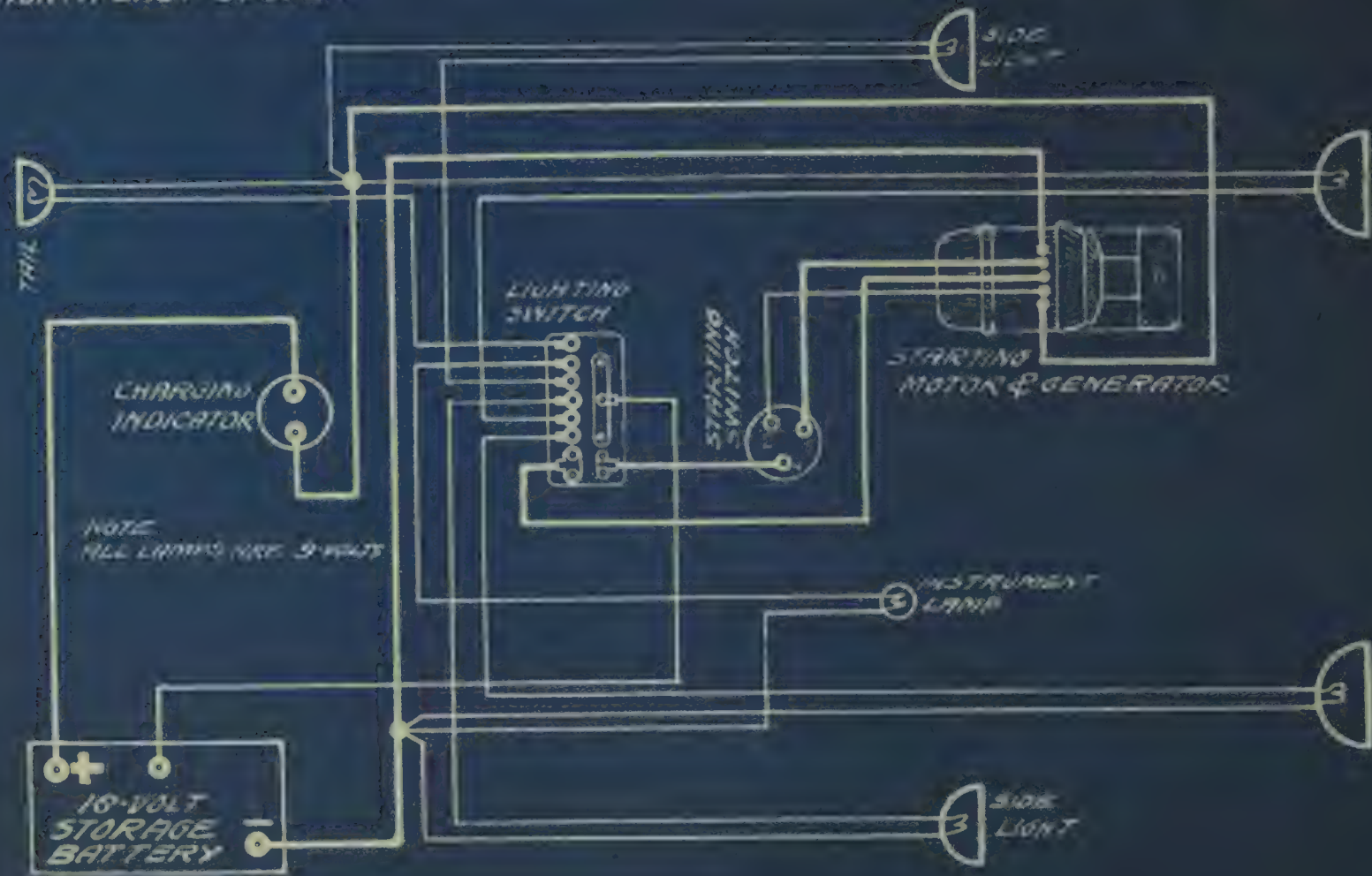
FROM EMPIRE B/P-32862-A





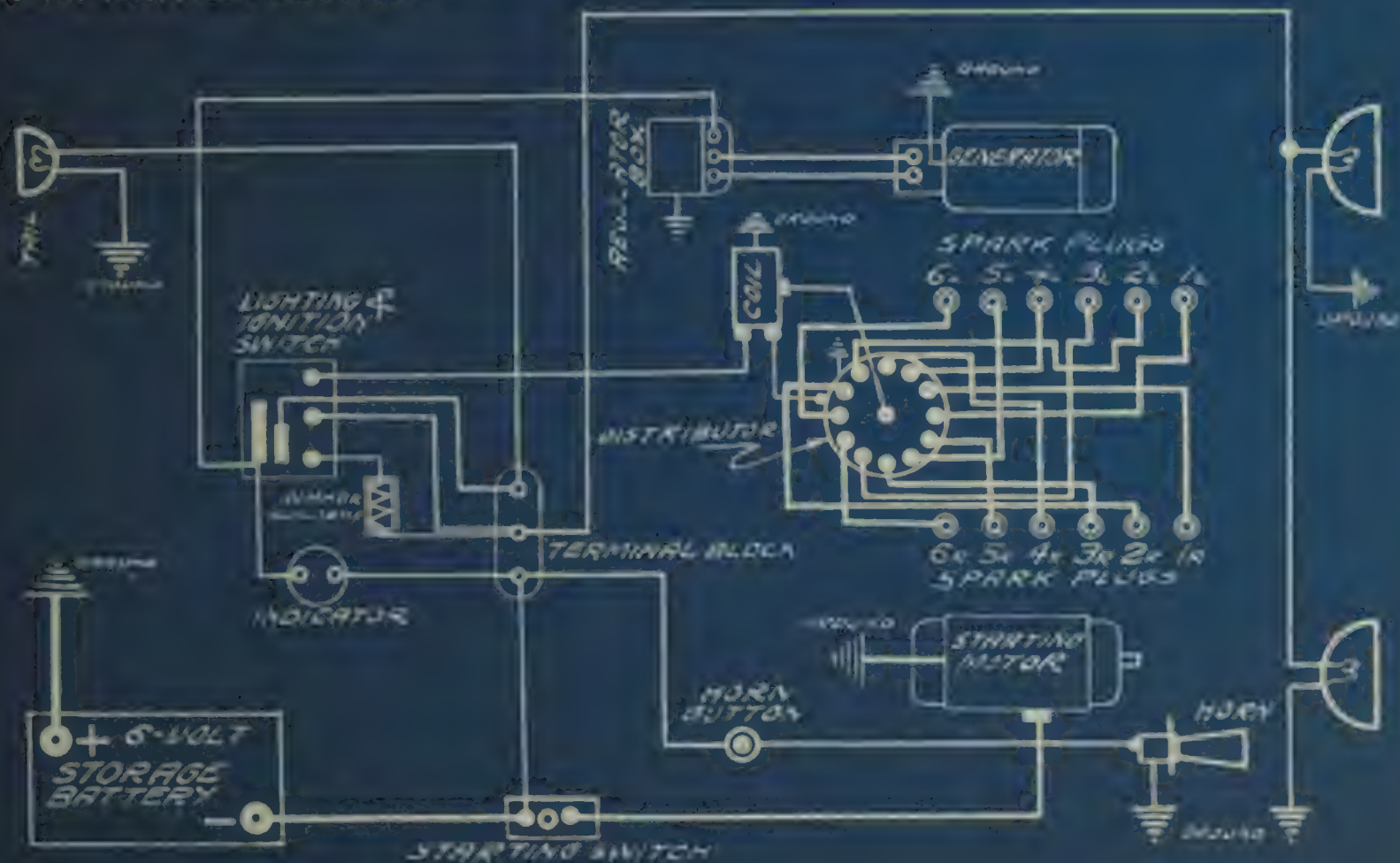
ENGER 1914  
NORTH EAST SYSTEM

FROM N.E. PLATE 803



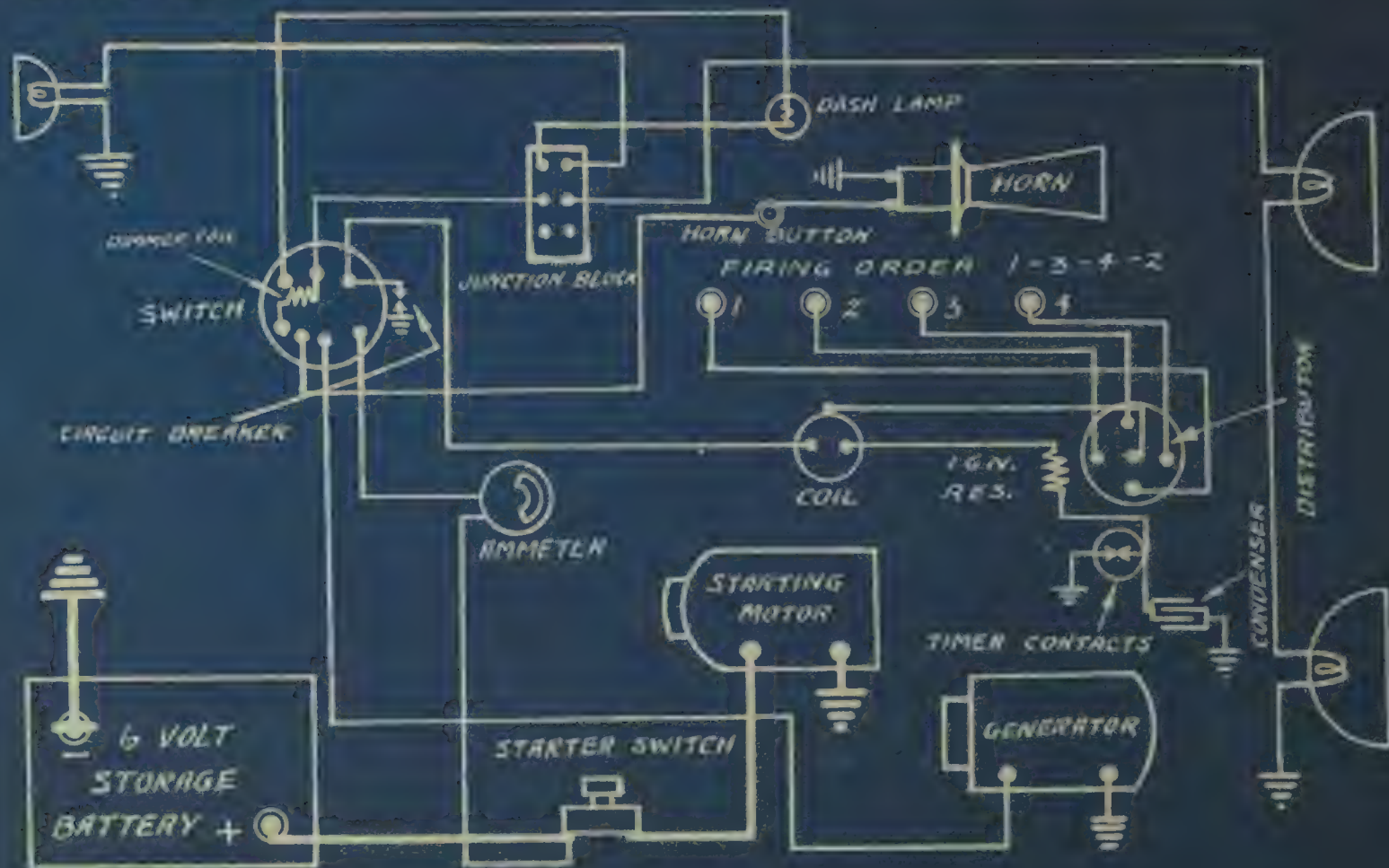
**ENGEL 19167 TWIN-UNIT TWELVE**  
**WESTINGHOUSE STARTING & LIGHTING SYSTEM**  
**GENY IGNITION SYSTEM**

FROM REMY INST. BK.



**ESSEX 1919**  
DELCO SYSTEM

FROM MFRS. INST. BK.

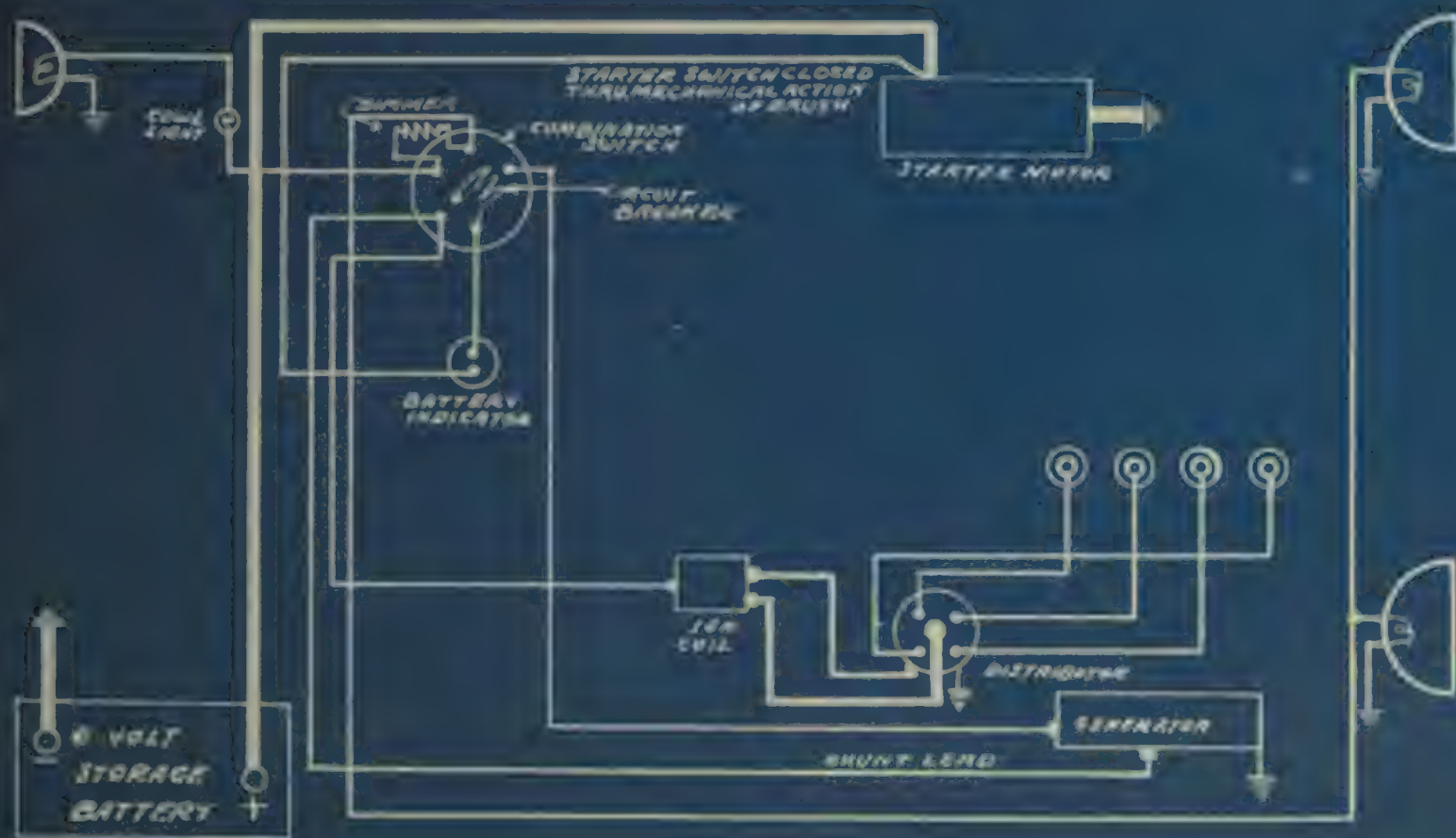


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Chicago, U.S.A.



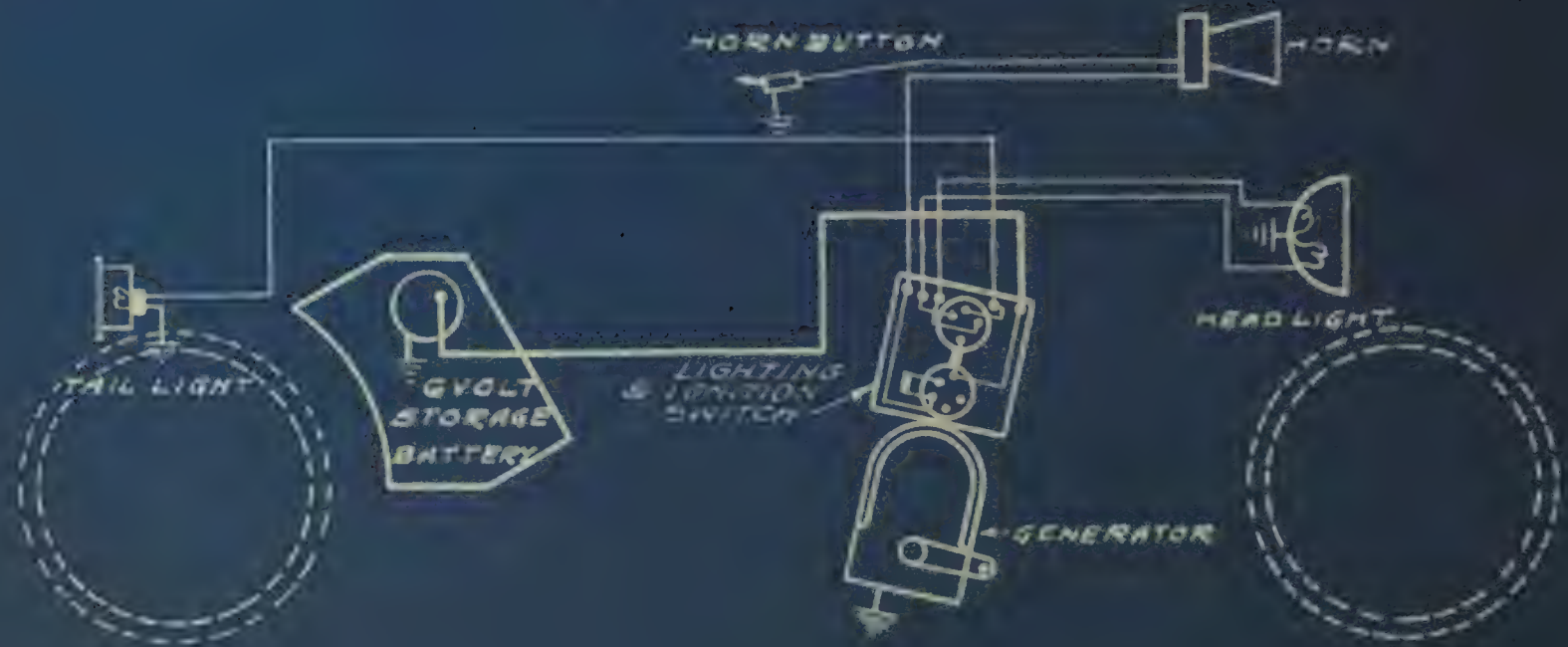
# ESSEX "A" 1920 DELCO SYSTEM

FROM WIRE INST BOOK



# EXCELSIOR MOTORCYCLE "C"

FROM WERS. DIAGRAM



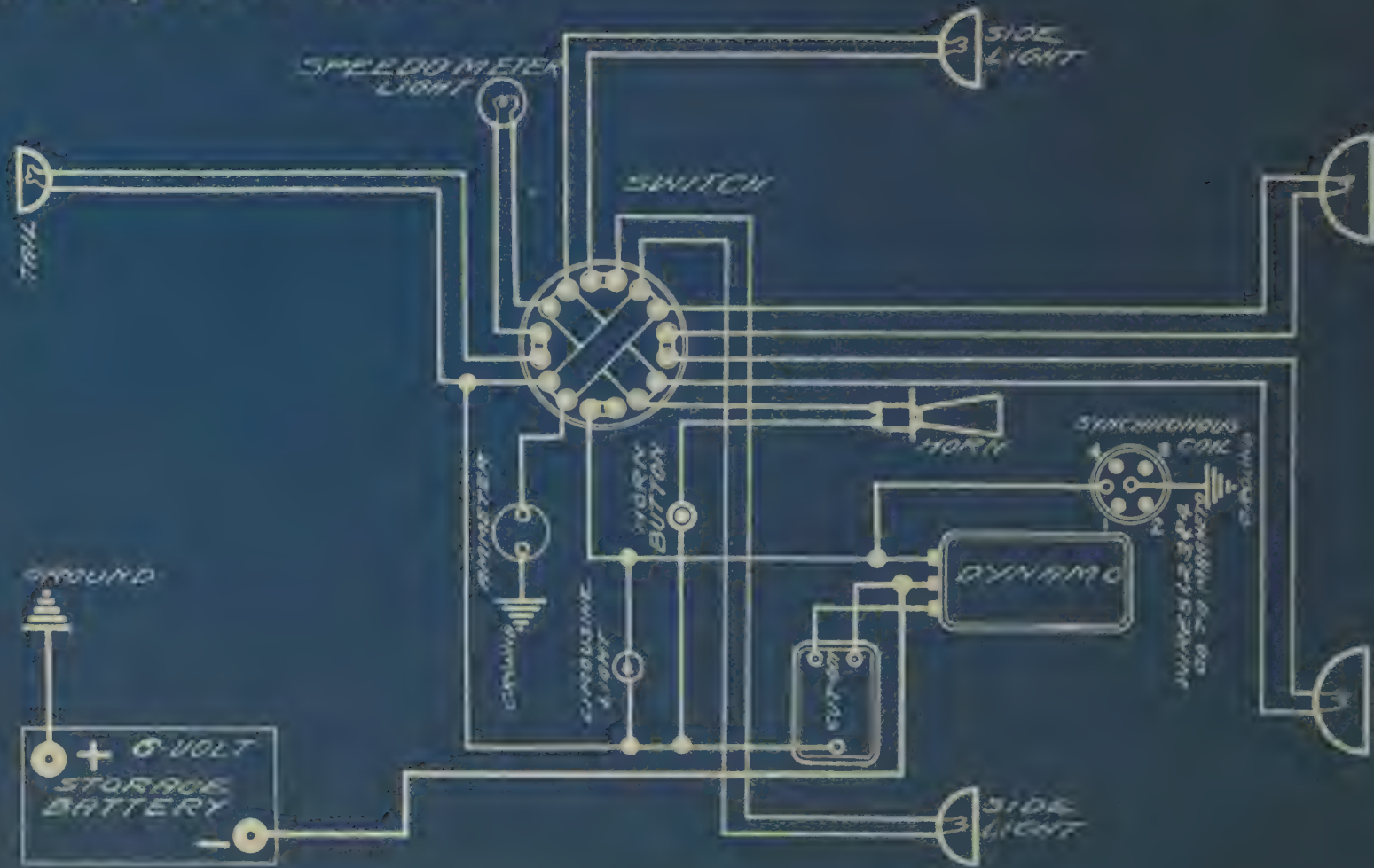
AMERICAN ELECTRIC CO.  
CHICAGO, ILL.





# F-I-A-T 1914 GRAY & DAVIS SYSTEM

FROM F-I-A-T 8A

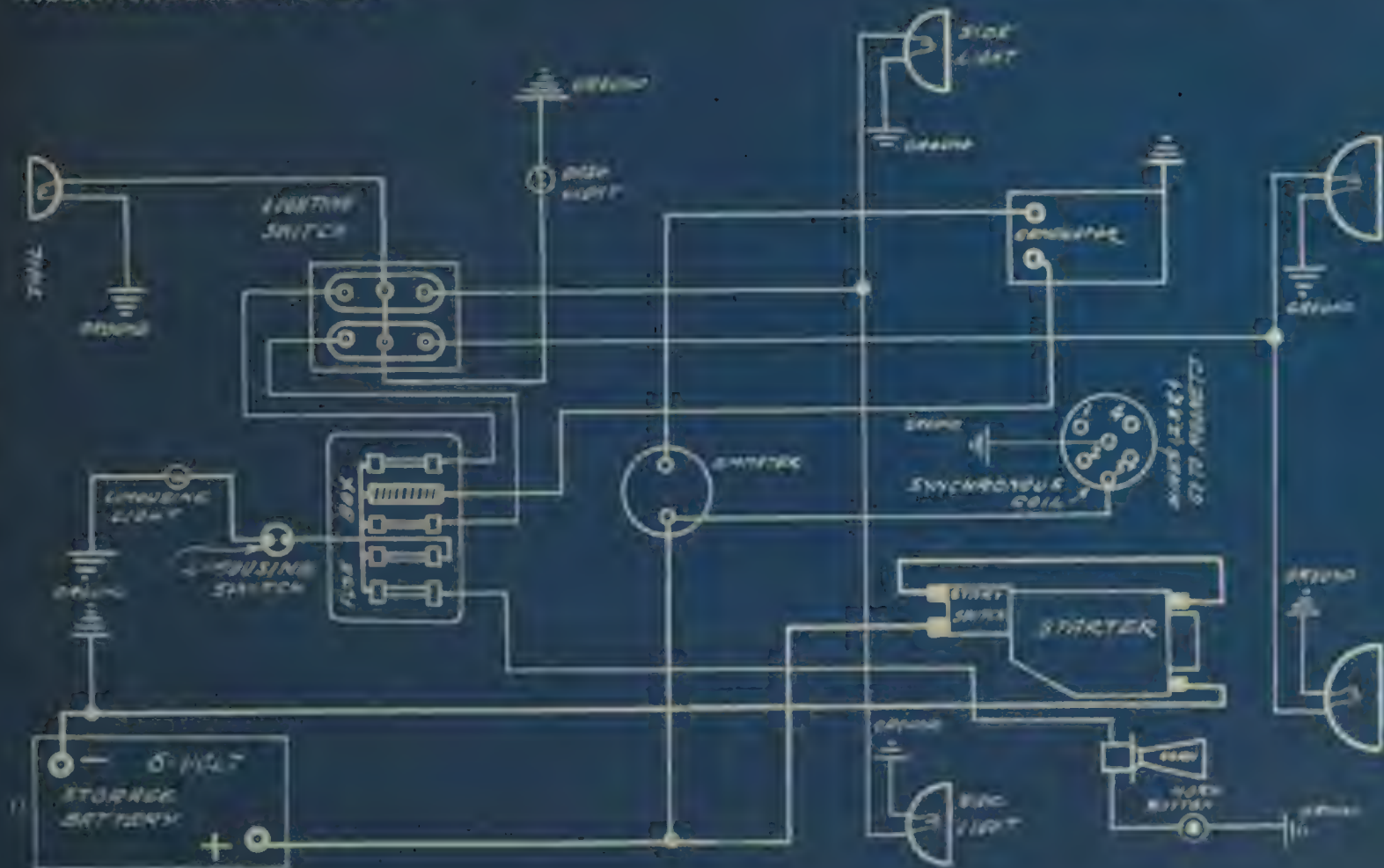


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12-1511-10000

F4-A-T 1914-1915  
WESTINGHOUSE SYSTEM

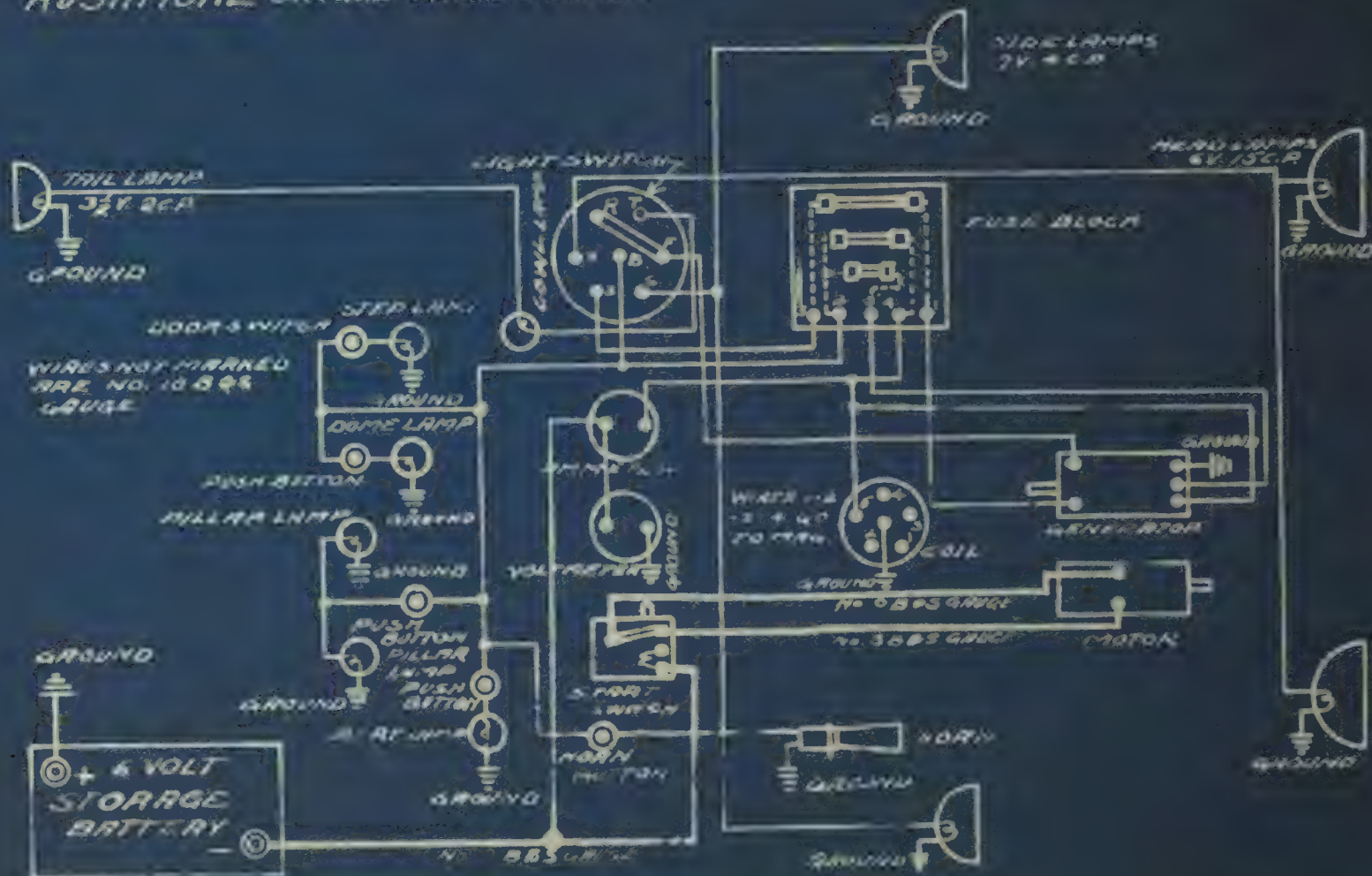
FROM WEST PLATE 62

AUTOMOTIVE PUBLICATION CO. CHICAGO, ILL.



# F-1-A-T 1915 RUSHMORE SINGLE WIRE SYSTEM

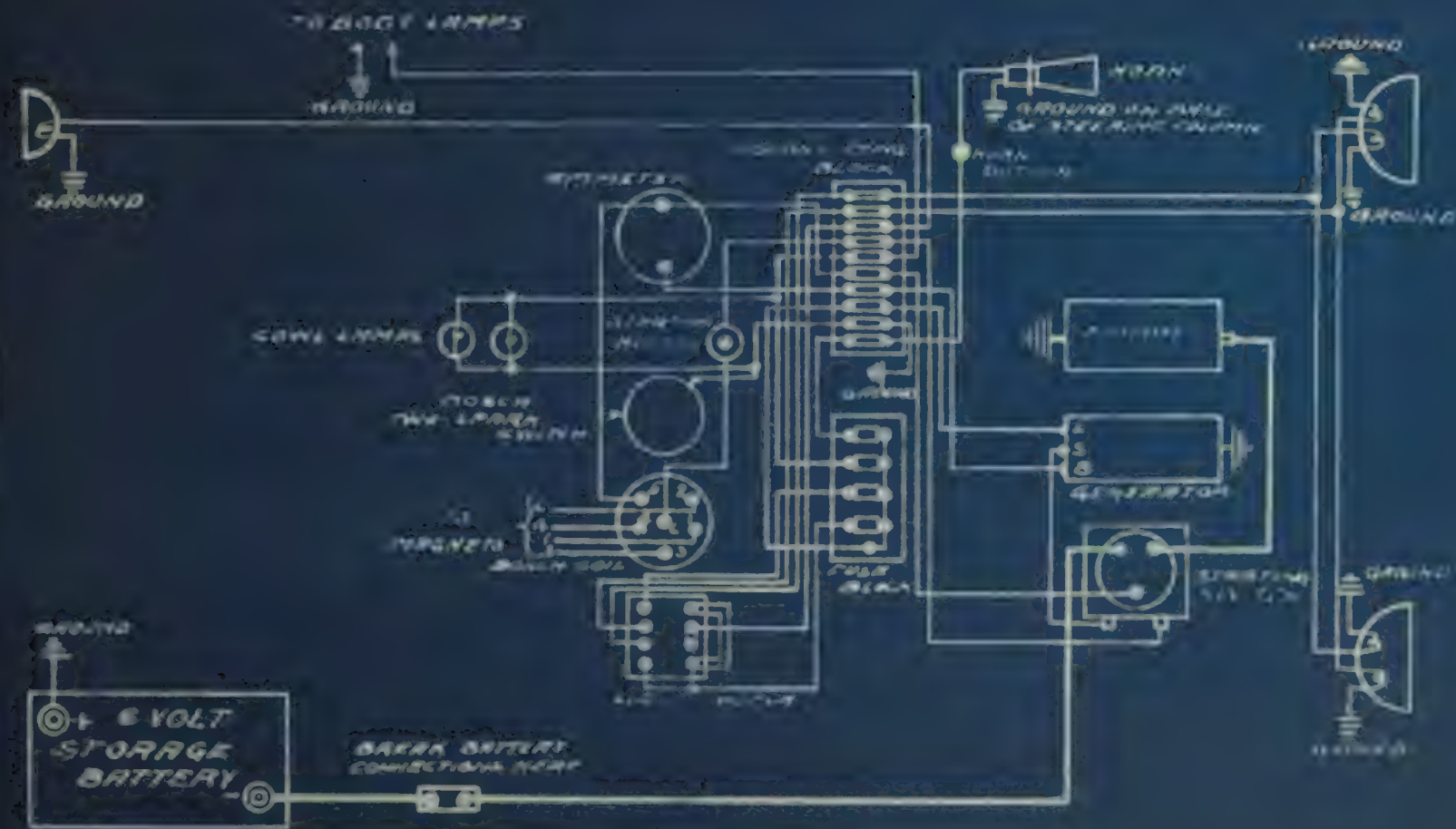
FROM F-1-A-T BLUE PRINT





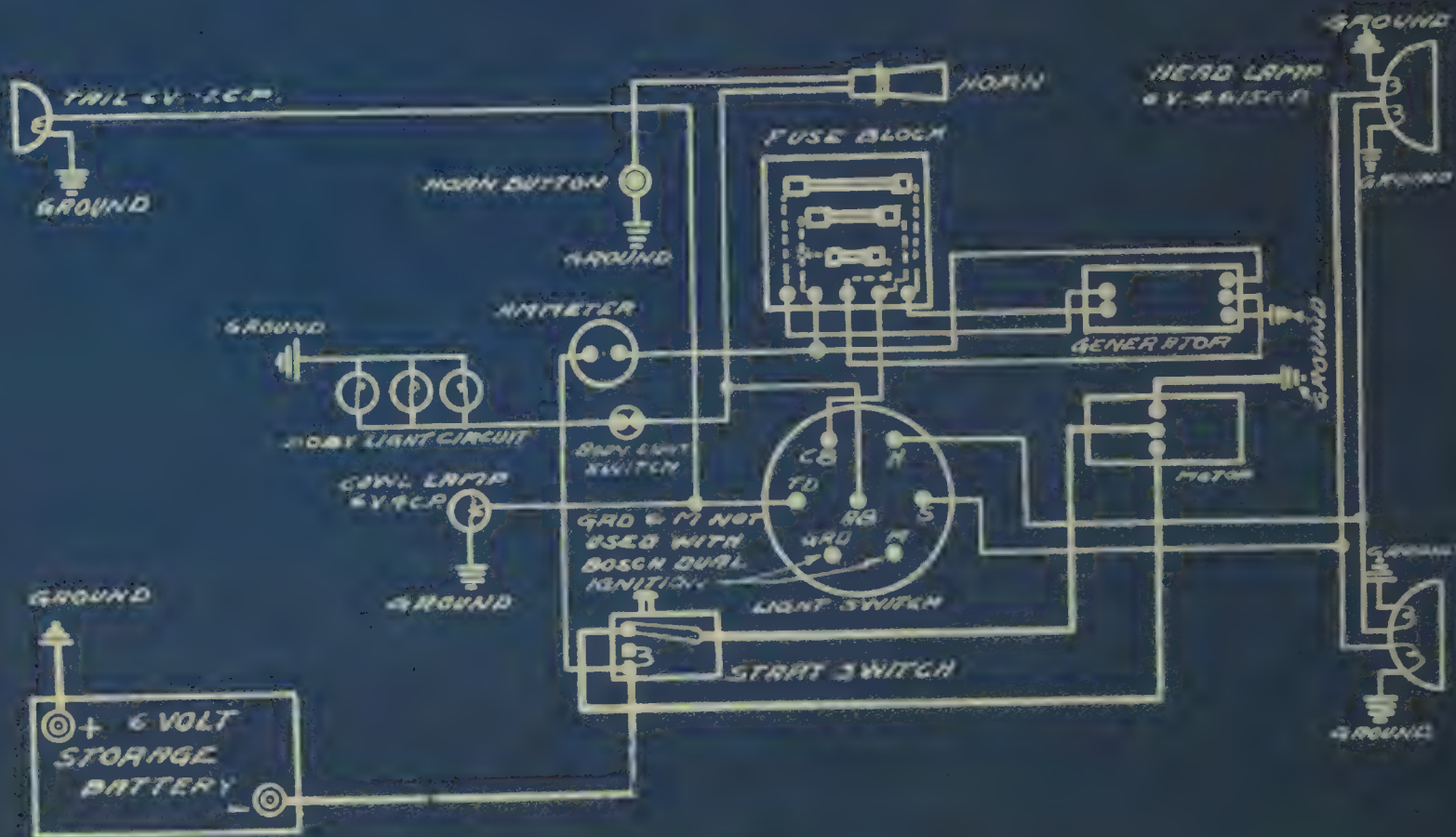
F.I.R.T. 1916-17 E-17 CIRCUITS  
WESTINGHOUSE SYSTEM

FROM F.I.R.T. BLUE PRINT



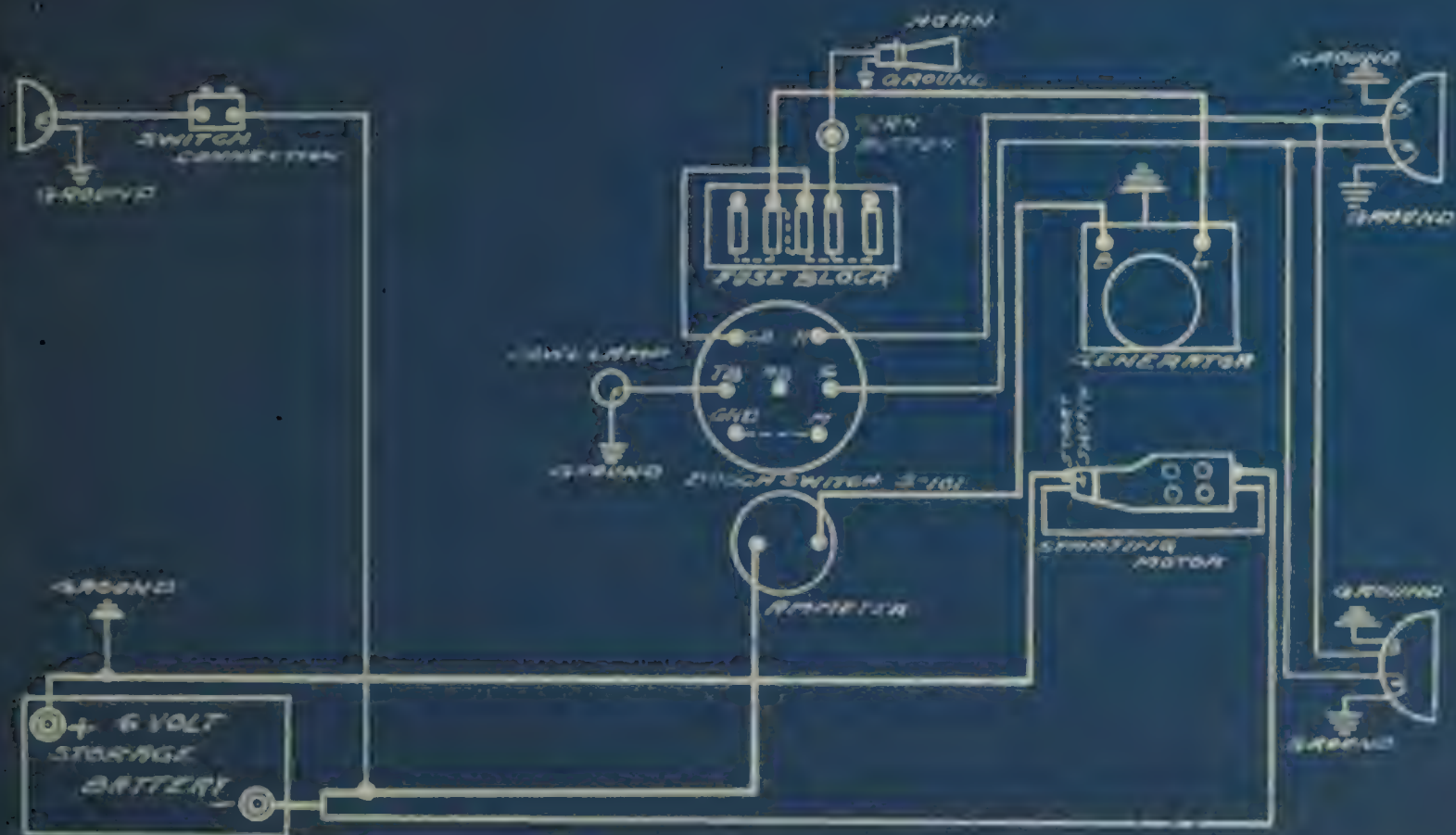
# F.I.R.T. 1917 BOSCH-RUSHMORE SYSTEM

FRONT F.I.R.T. BLUE PRINT



F-1-R-T 1917  
WESTINGHOUSE SYSTEM

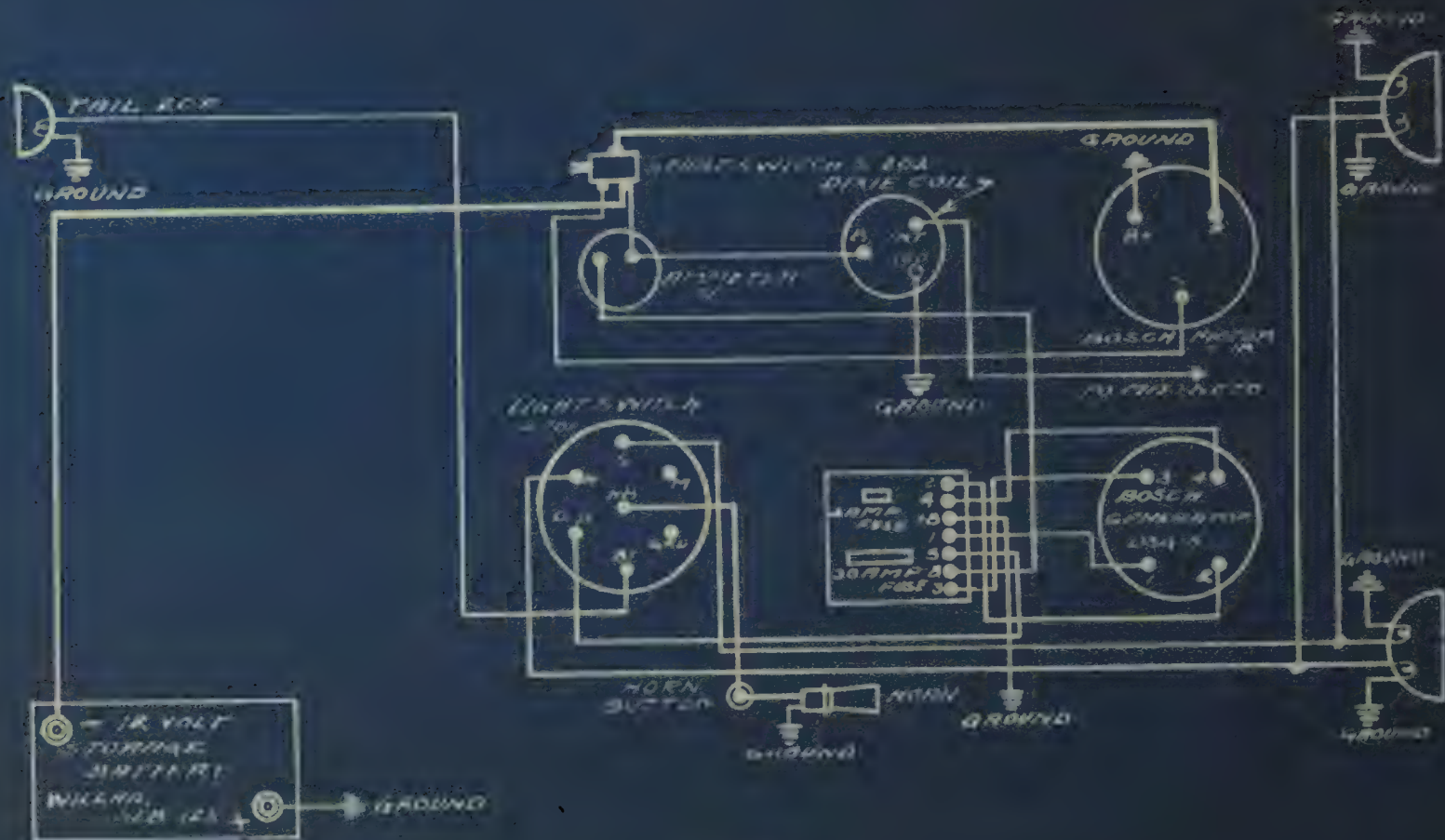
FROM F-1-R-T BLUEPRINT





# F-I-A-T 1917 C-3 CHASSIS BOSCH SYSTEM

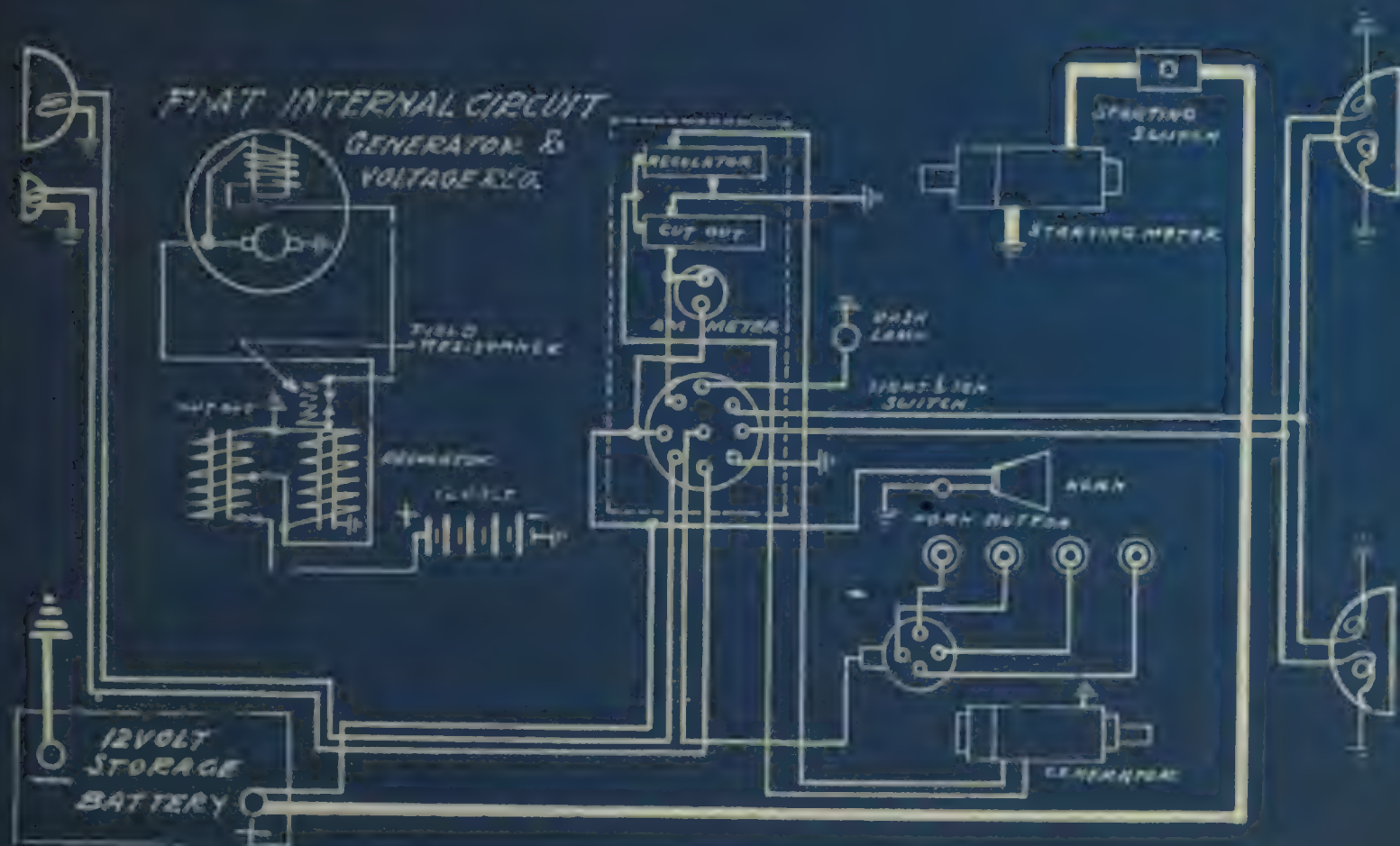
FROM F-I-A-T BLUE PRINT



# F-I-A-T 2-3A 1918-9-20

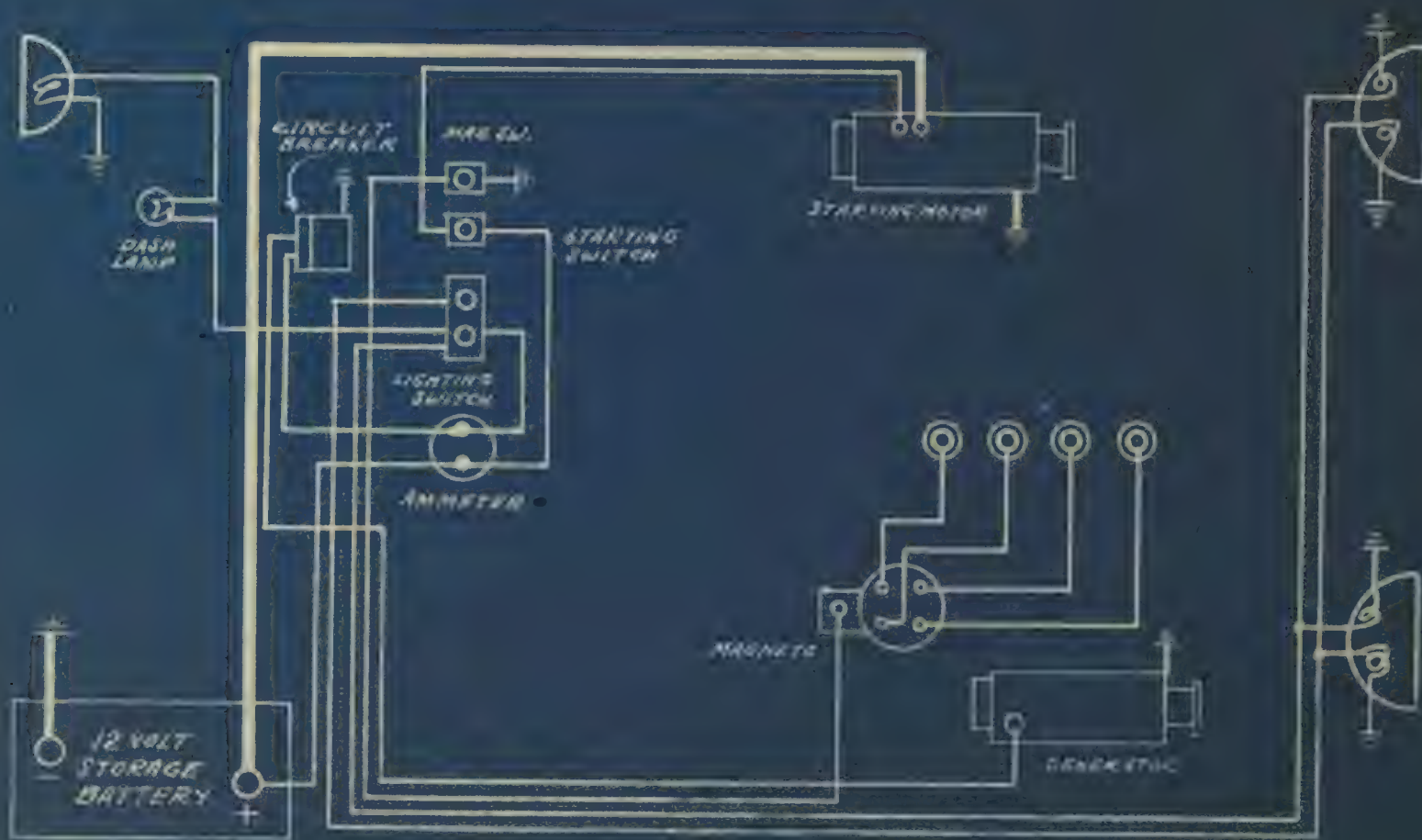
## F-I-A-T SYSTEM

FROM F-I-A-T SKETCH



*F-I-A-T 501-5-10 (IMPORTED) 1920*  
*F-I-A-T SYSTEM*

*PROF. H. J. KRECH*

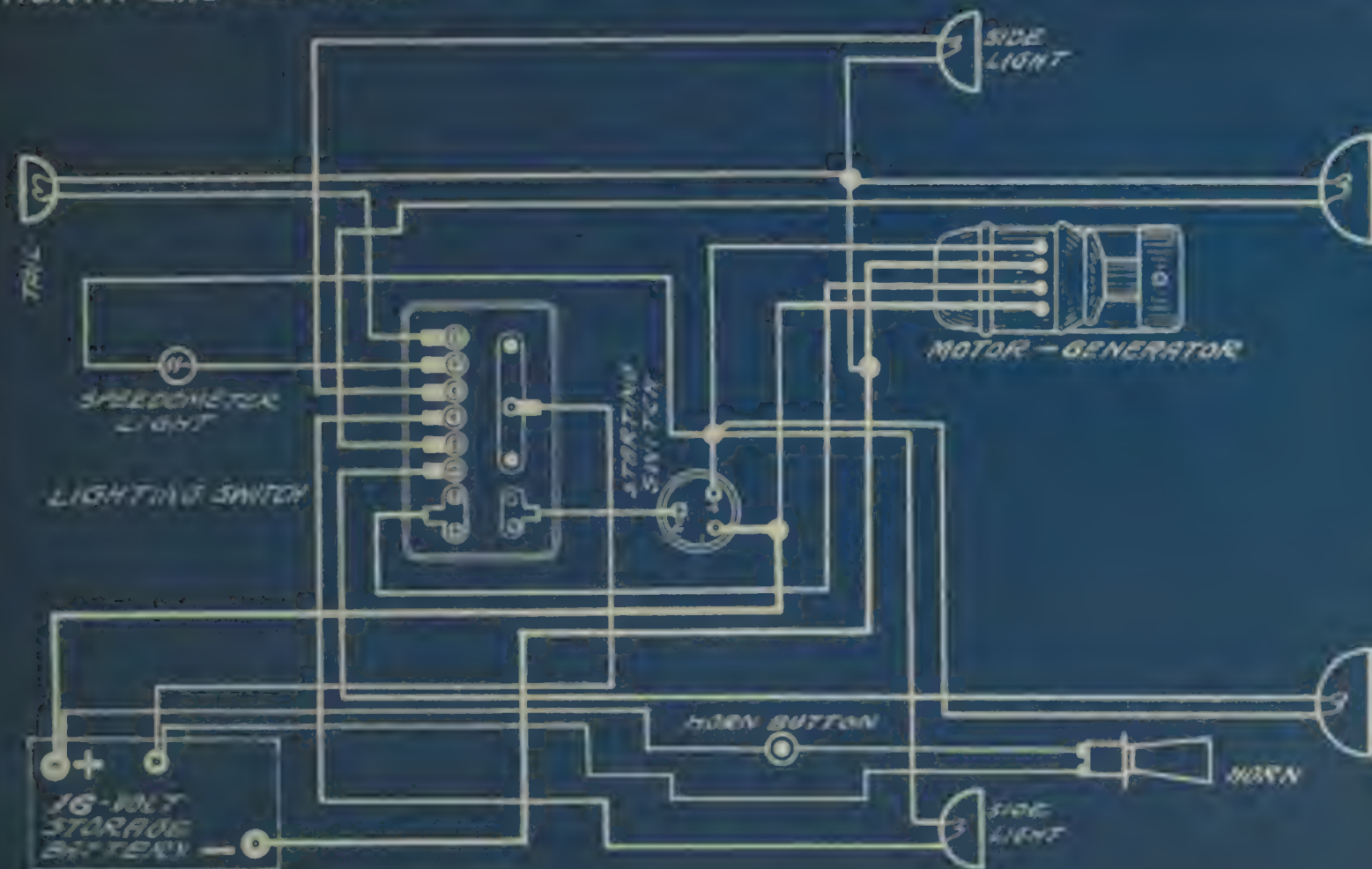


*Automotive Publishing Co.  
 1920-1921*



# FIRESTONE-COLUMBUS 1913 NORTH-EAST SYSTEM

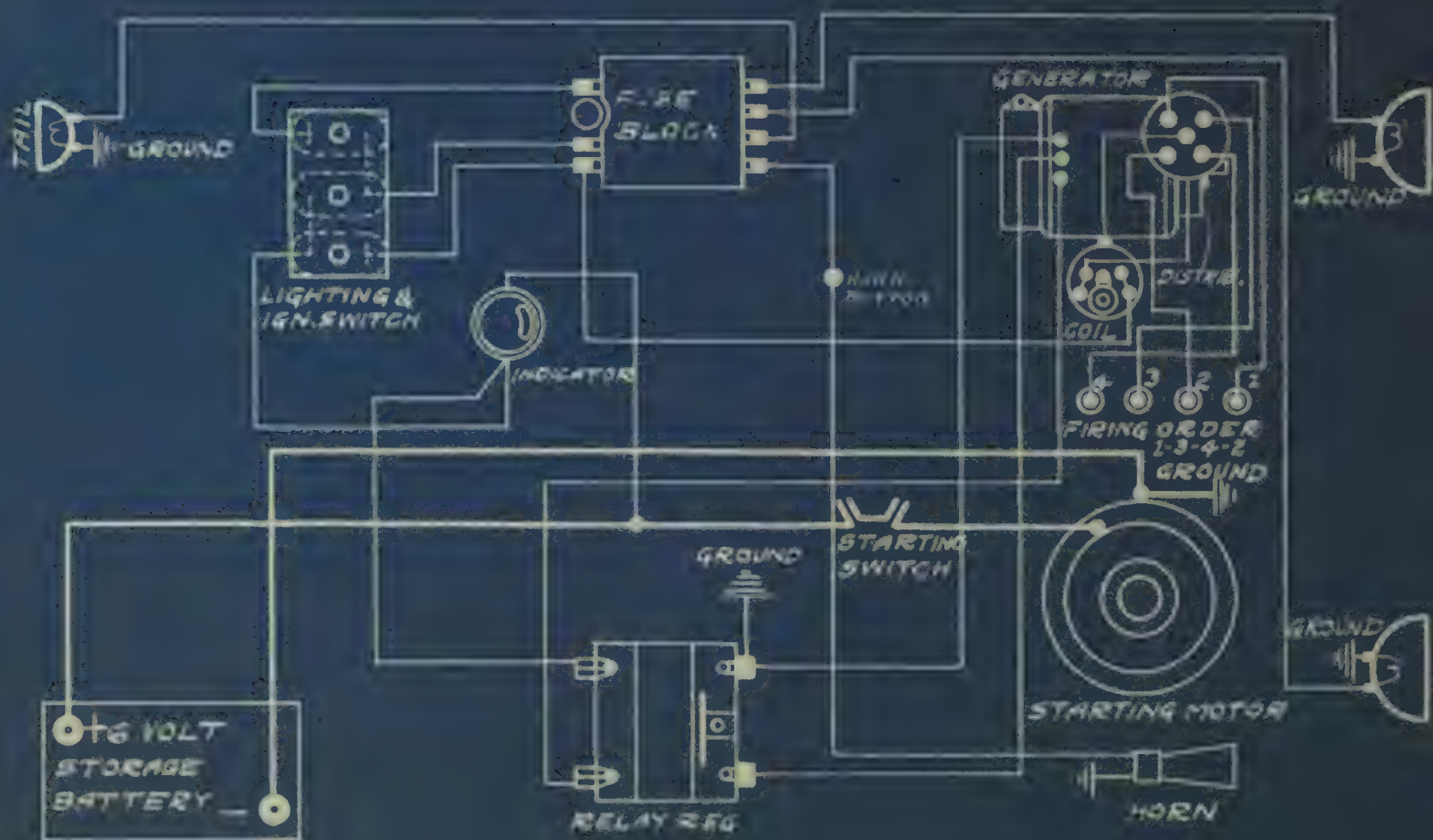
FROM N.E. PLATE 140



# FISHER 1916

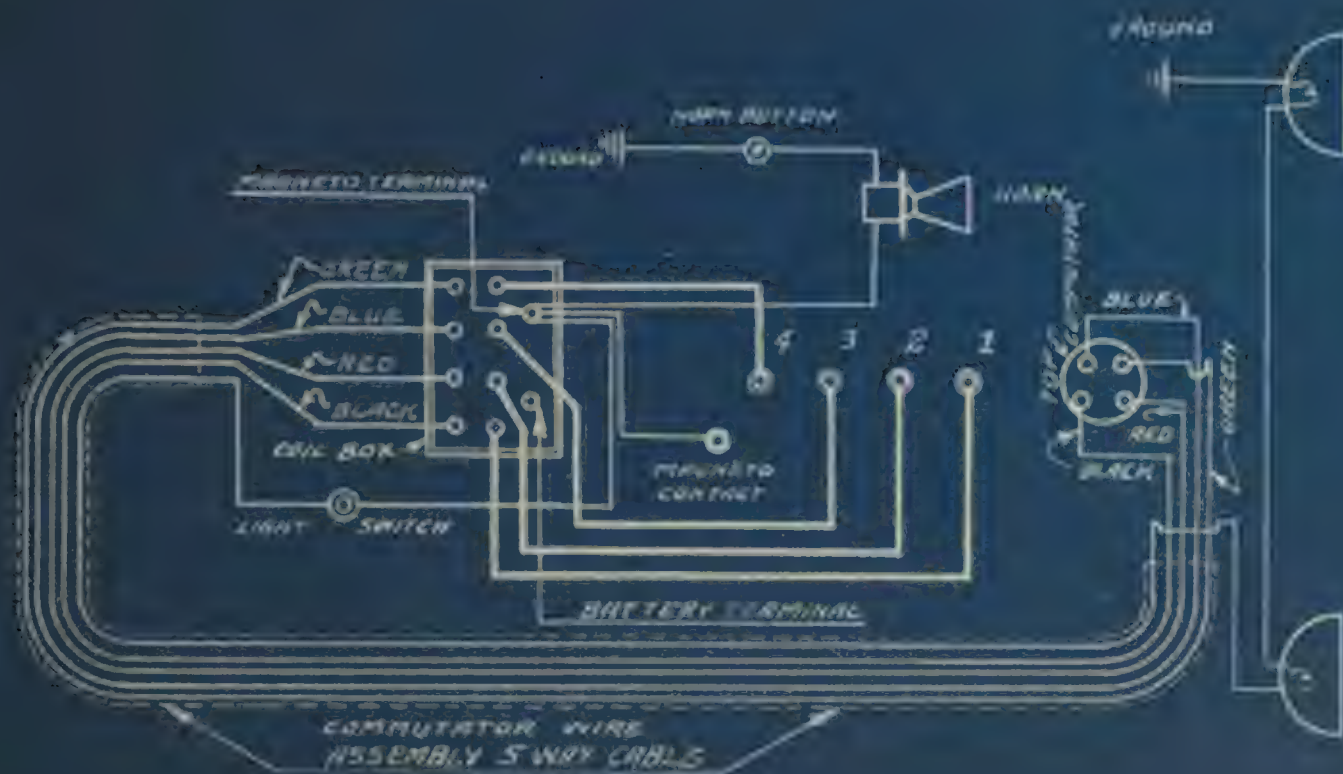
REMY SYSTEM

FROM REMY PLATE



# FORD STANDARD WIRING

FROM FORD MANUAL-CUT 10

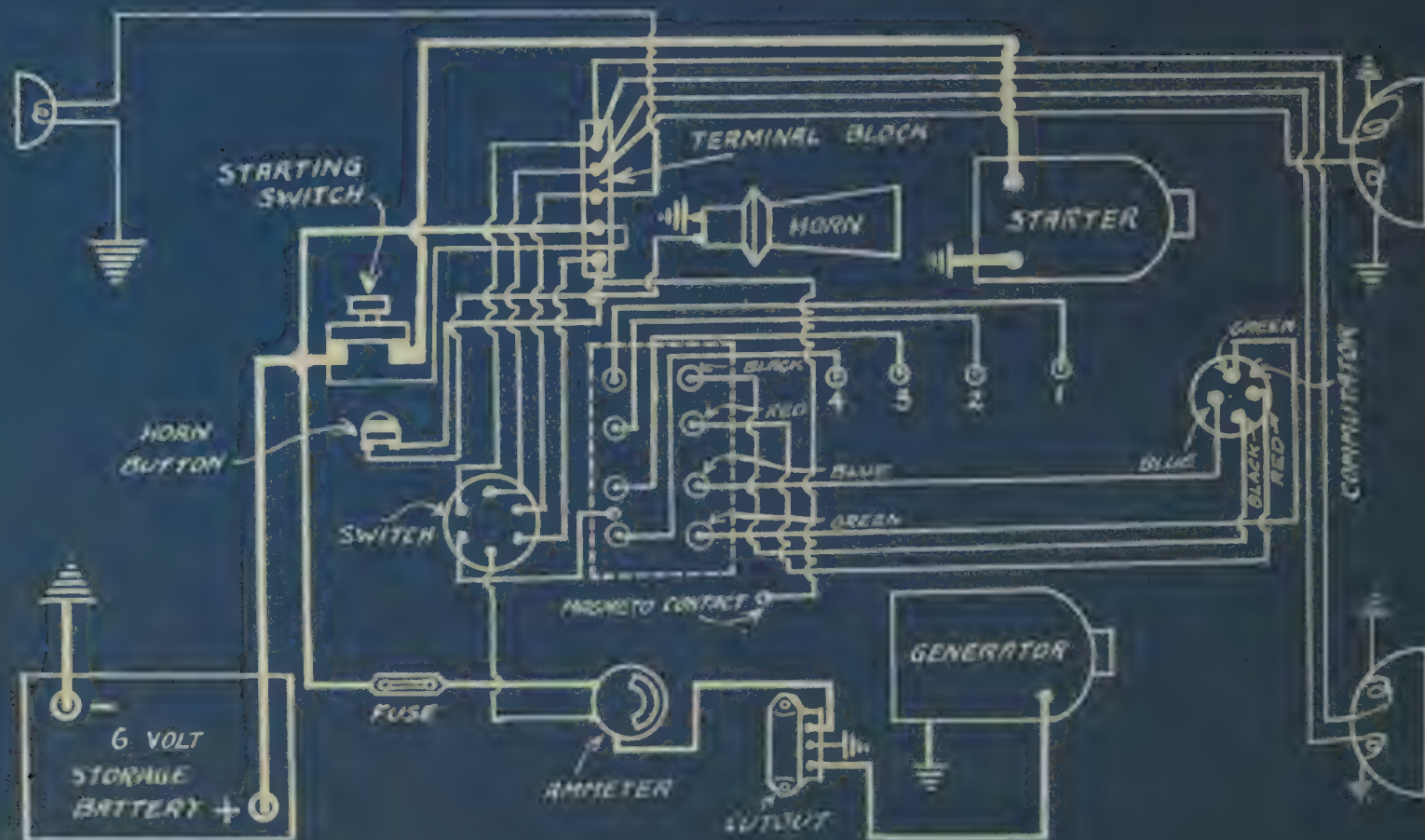




# FORD 1919 COUPE & SEDAN 1920

LIBERTY MAGNET SYSTEM FORD IGNITION

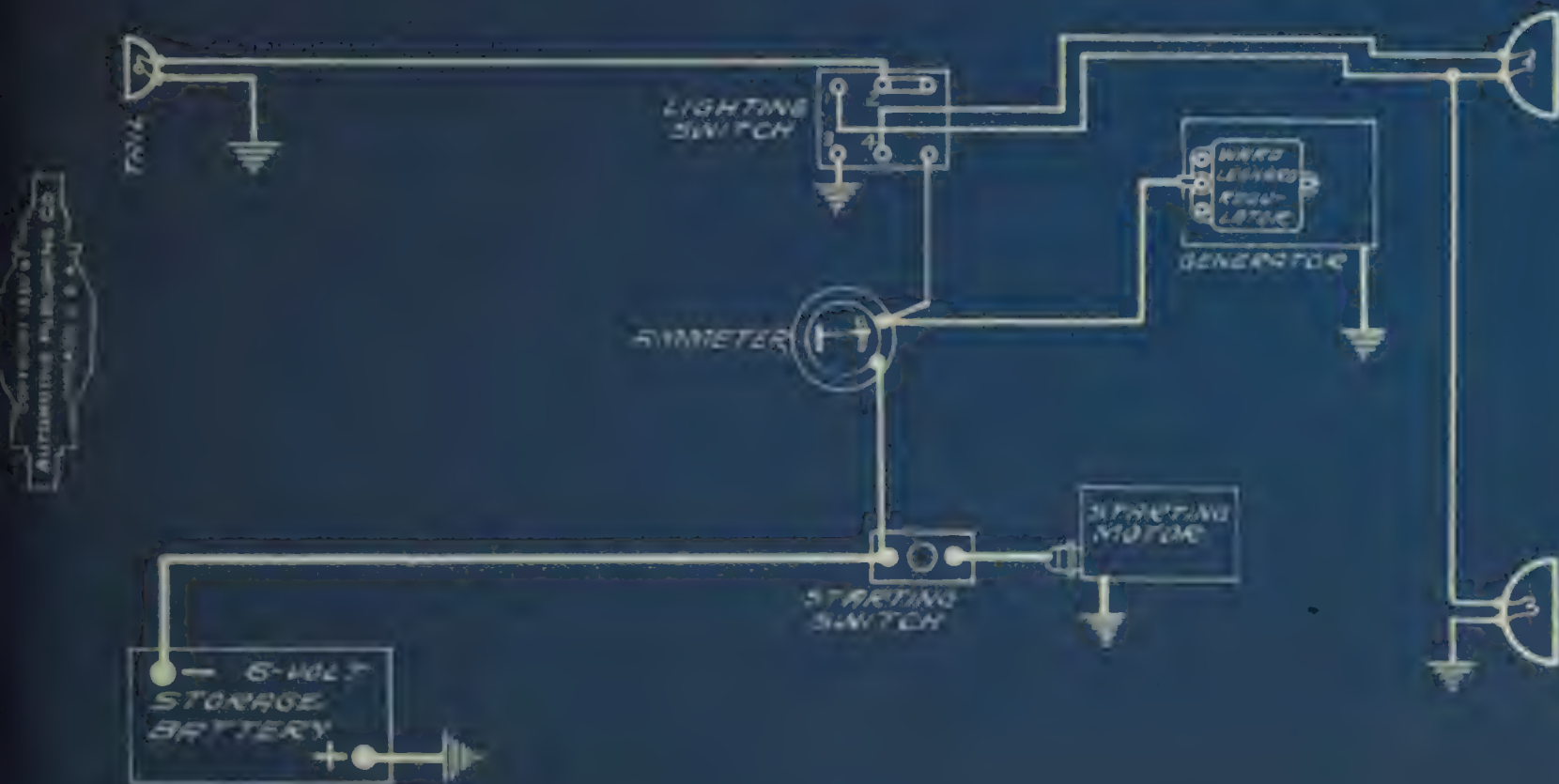
FROM FORD B/P T-1737-B



CORPORATION OF  
AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL.

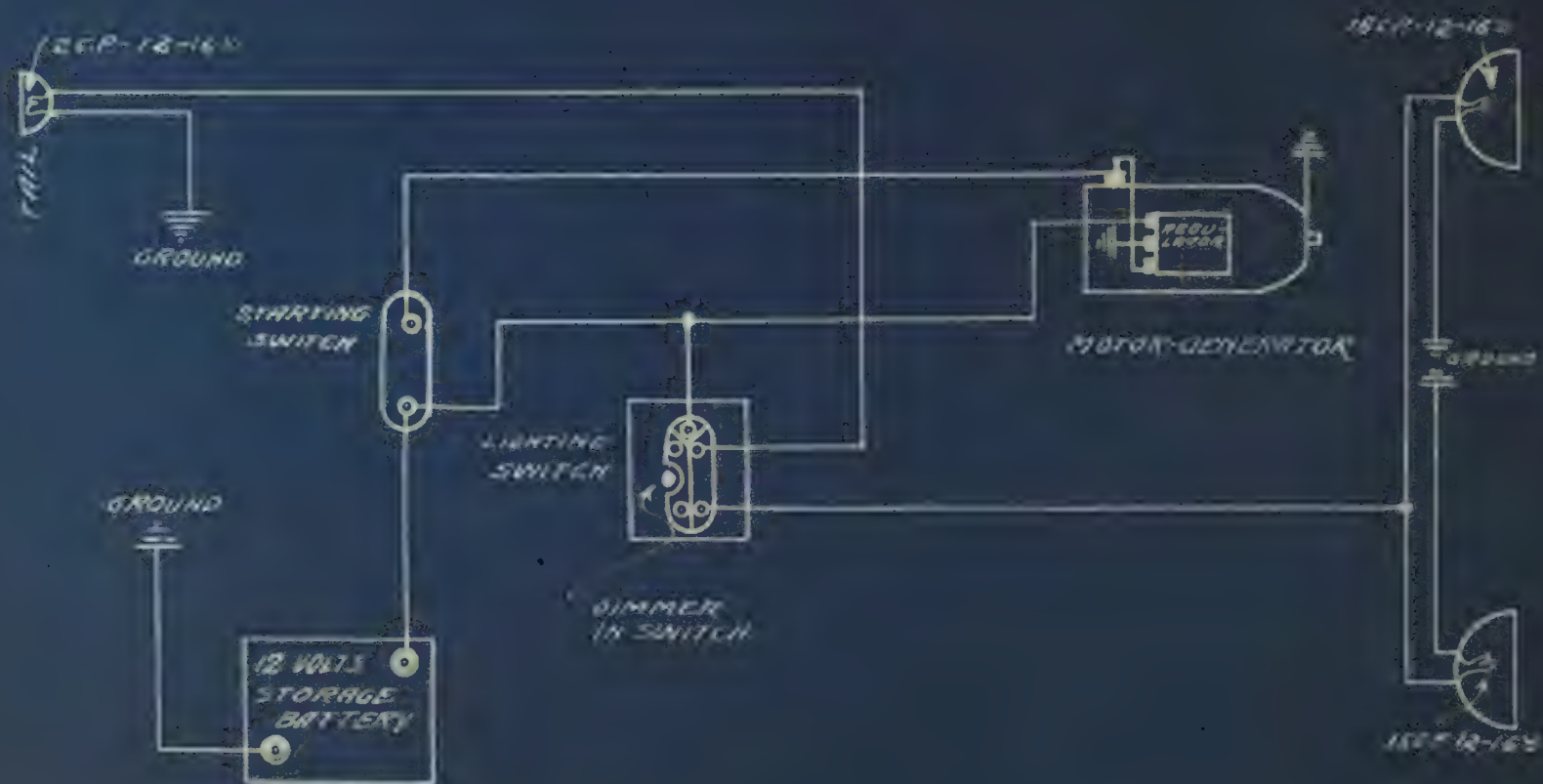
# FORD

A-B-C SYSTEM EQUIPPED WITH ROBBINS & MEYERS STARTING MOTOR, WESTINGHOUSE GENERATOR AND WARD LEONARD CONTROLLER



# FORD DISCO STARTING & LIGHTING SYSTEM

FROM DISCO CIRCULAR



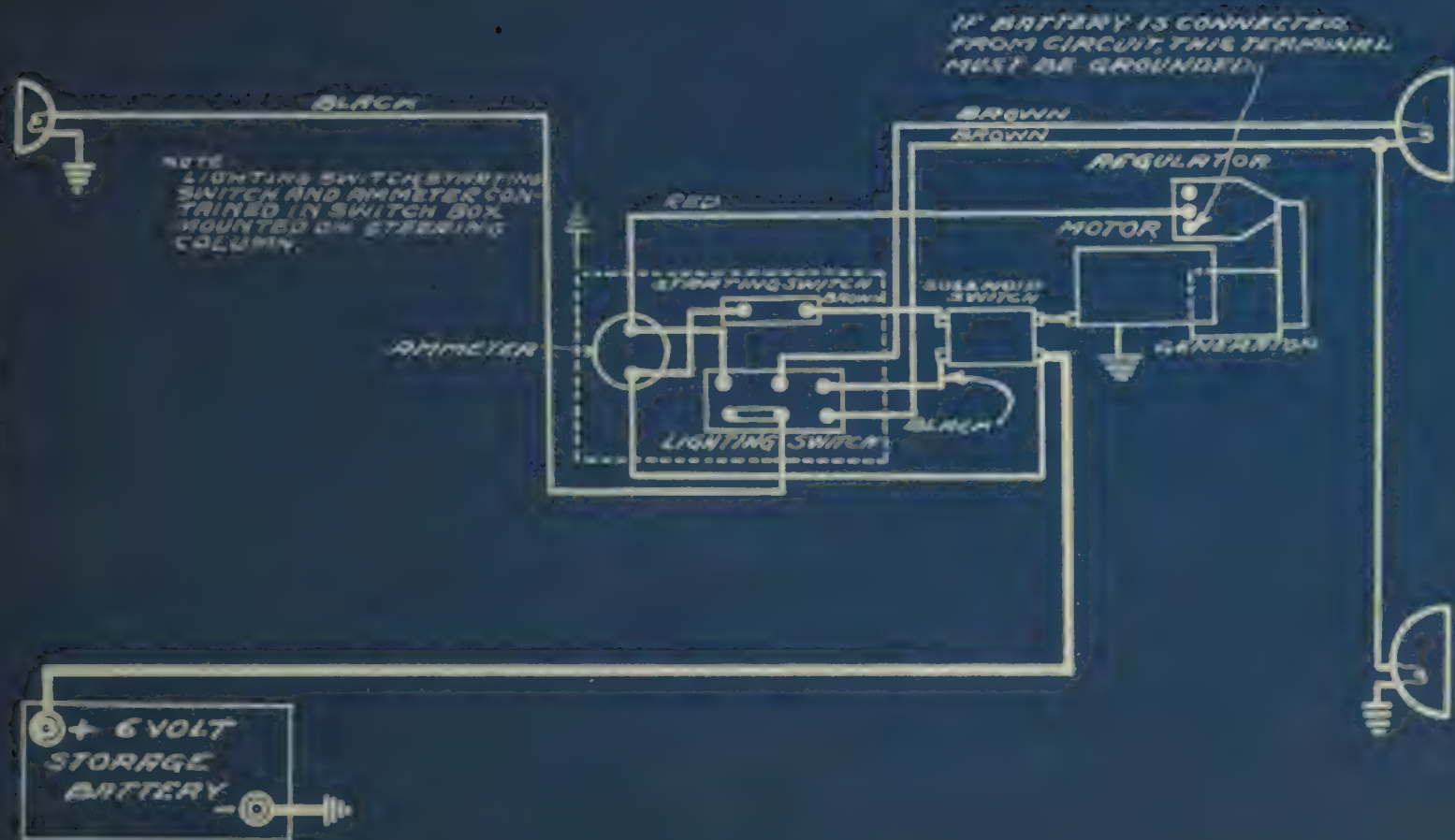
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HOBOKEN, N. J.



# FORD DISCO TWO UNIT STANDARD INSTALLATION

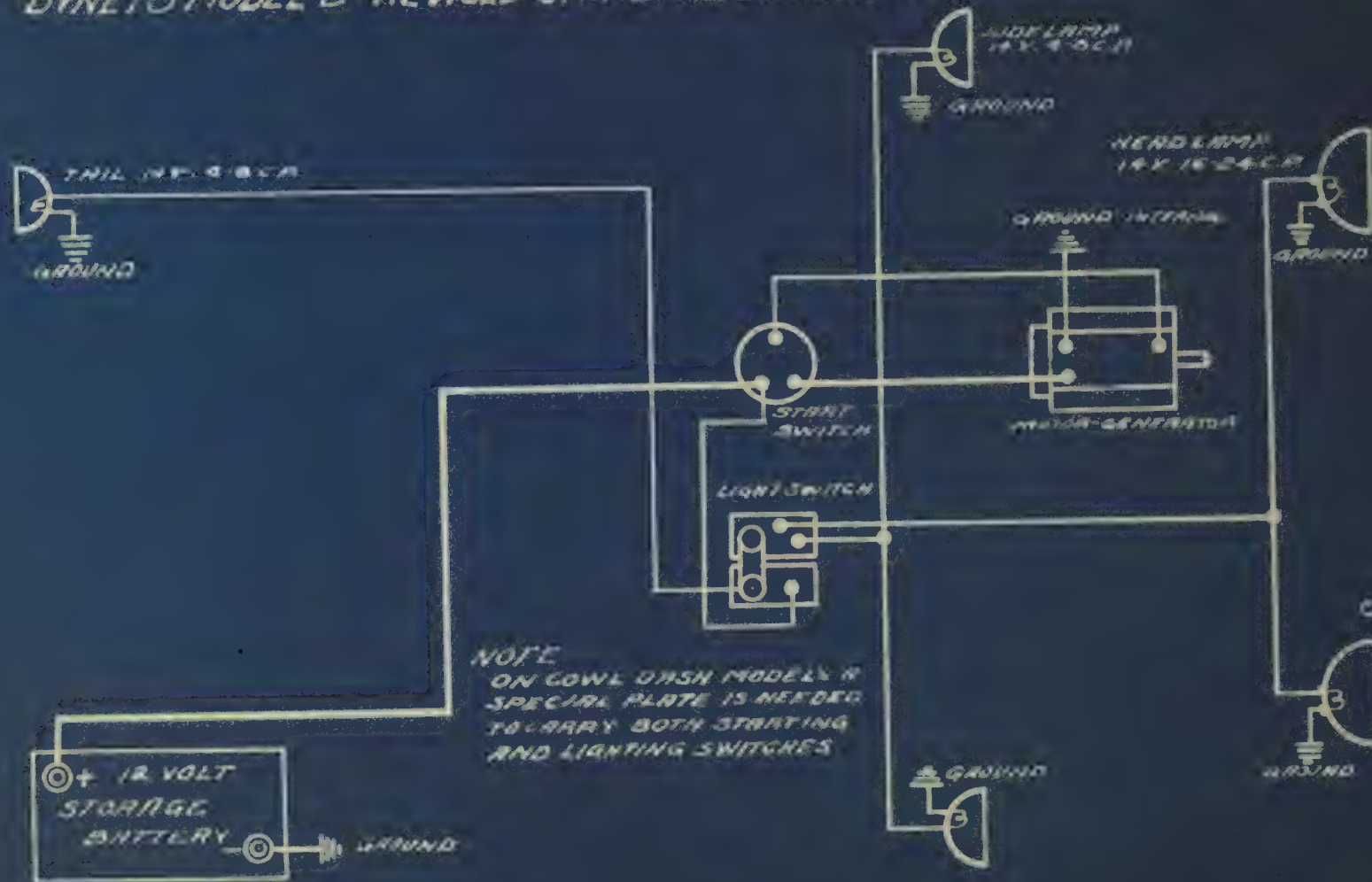
FROM DISCO DIAGRAM

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# FORD DYNETO MODEL B (REVISED STANDARD DIAGRAM)

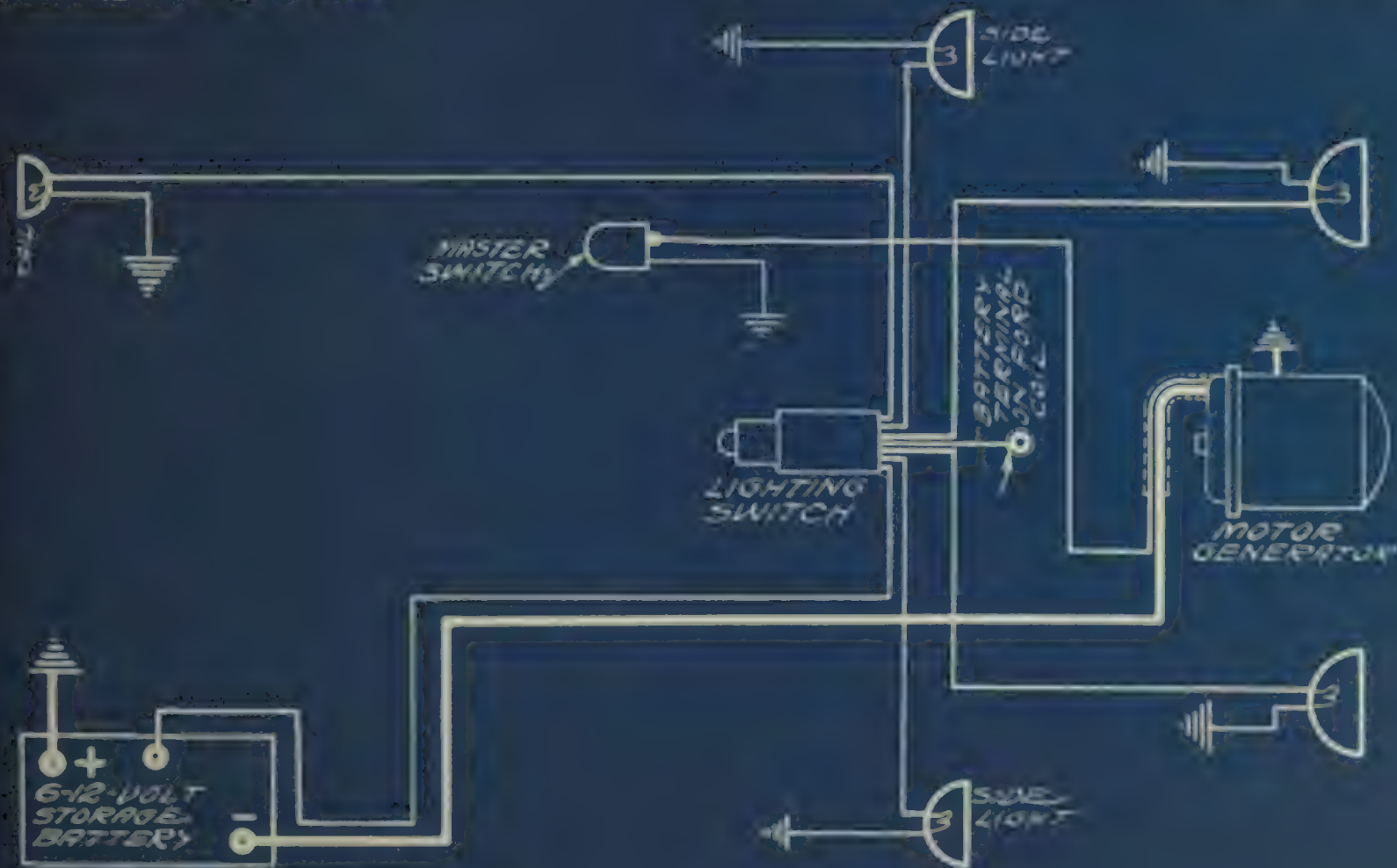
FROM DYNETO DRAWING



AUTOMOTIVE PUBLICATIONS CO.  
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# FORD EVERREADY SYSTEM

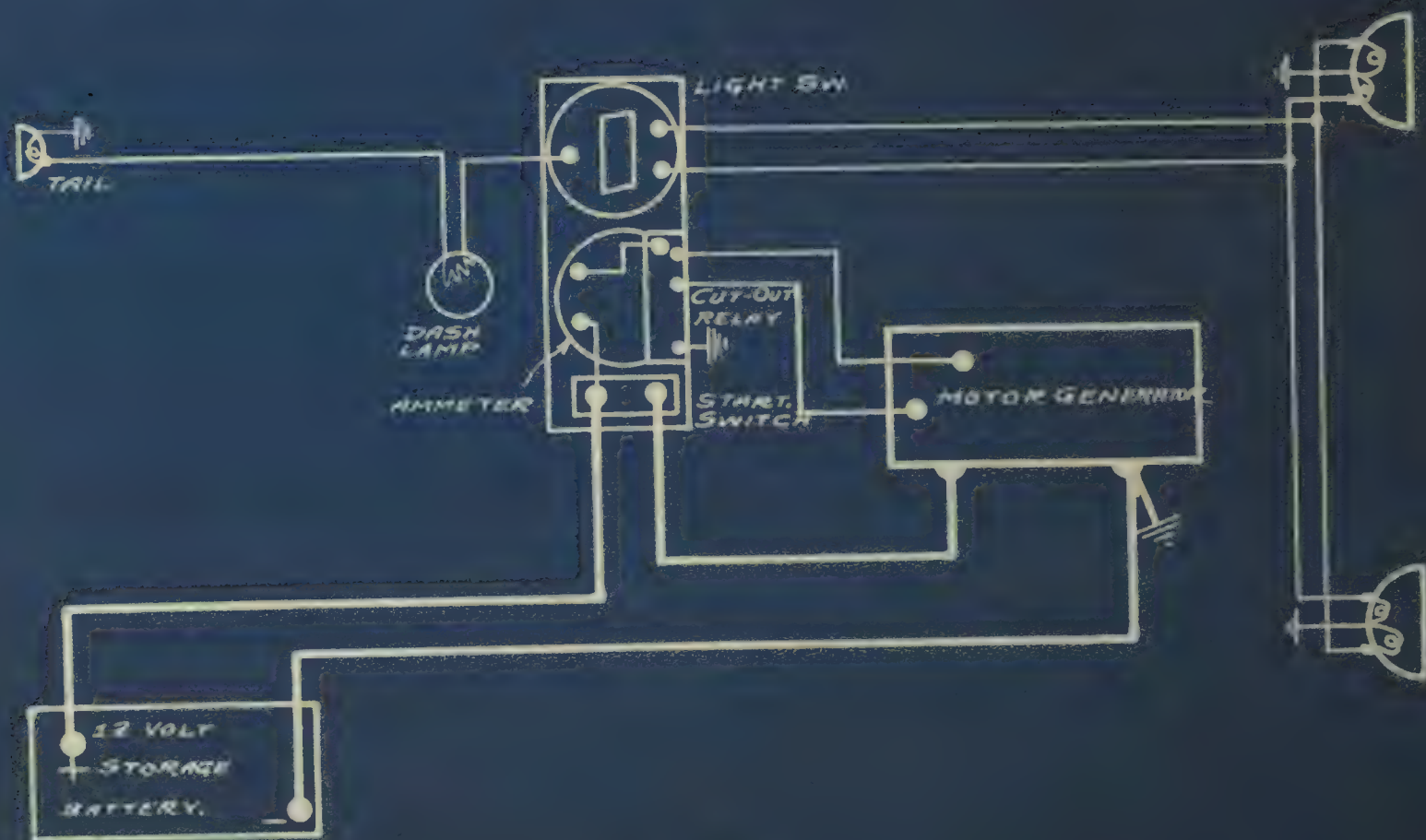
FROM EVEREADY LAST SHEET





# FORD FISHER SYSTEM

FROM AJP SKETCH

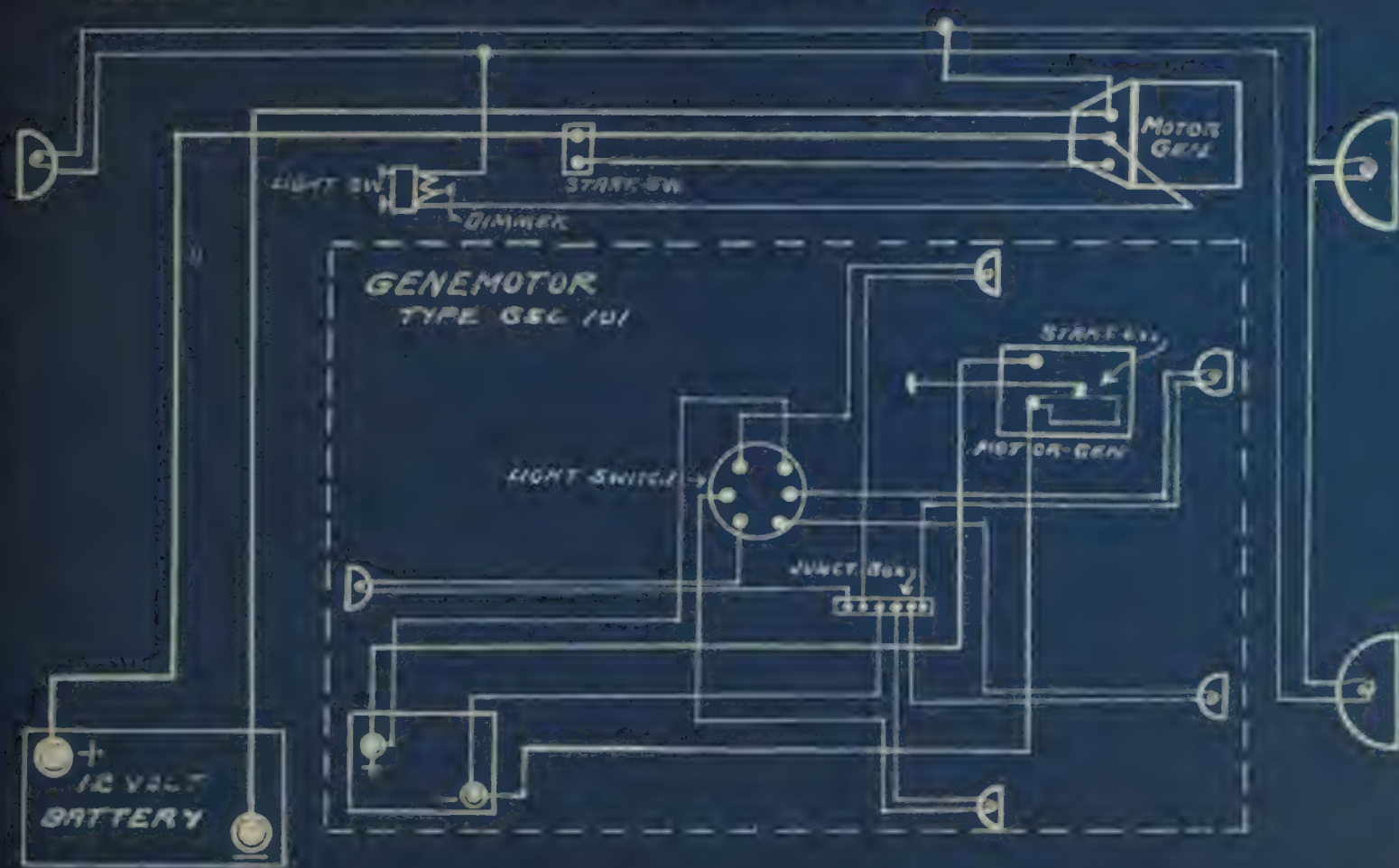


# FORD

## GENEMOTOR SYSTEM

## TYPE GSL 101-103

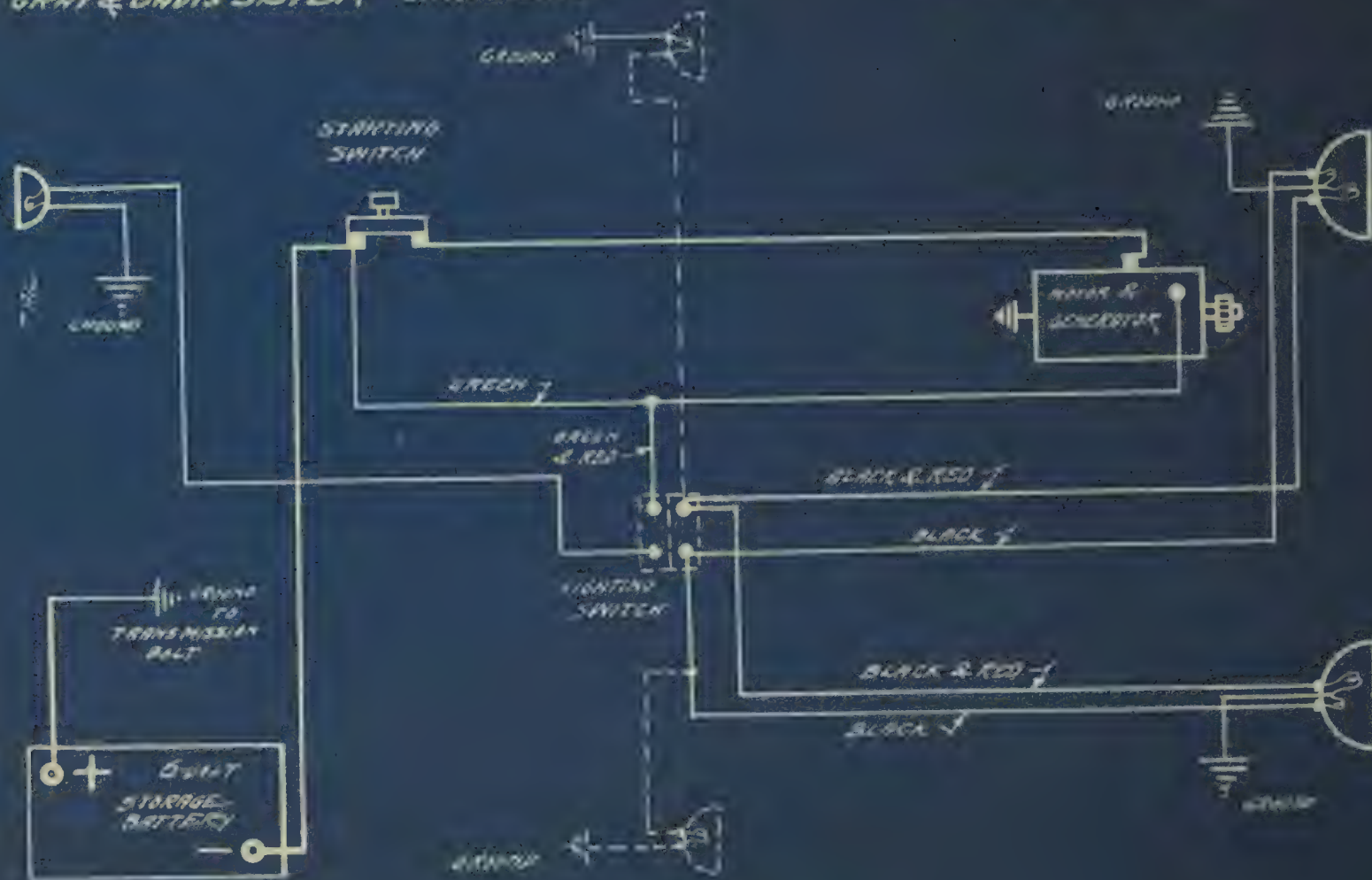
FROM MFR'S INST. BOOK



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# FORD GRAY & DAVIS SYSTEM - SINGLE UNIT-

FROM G. & D. INST. BOOK



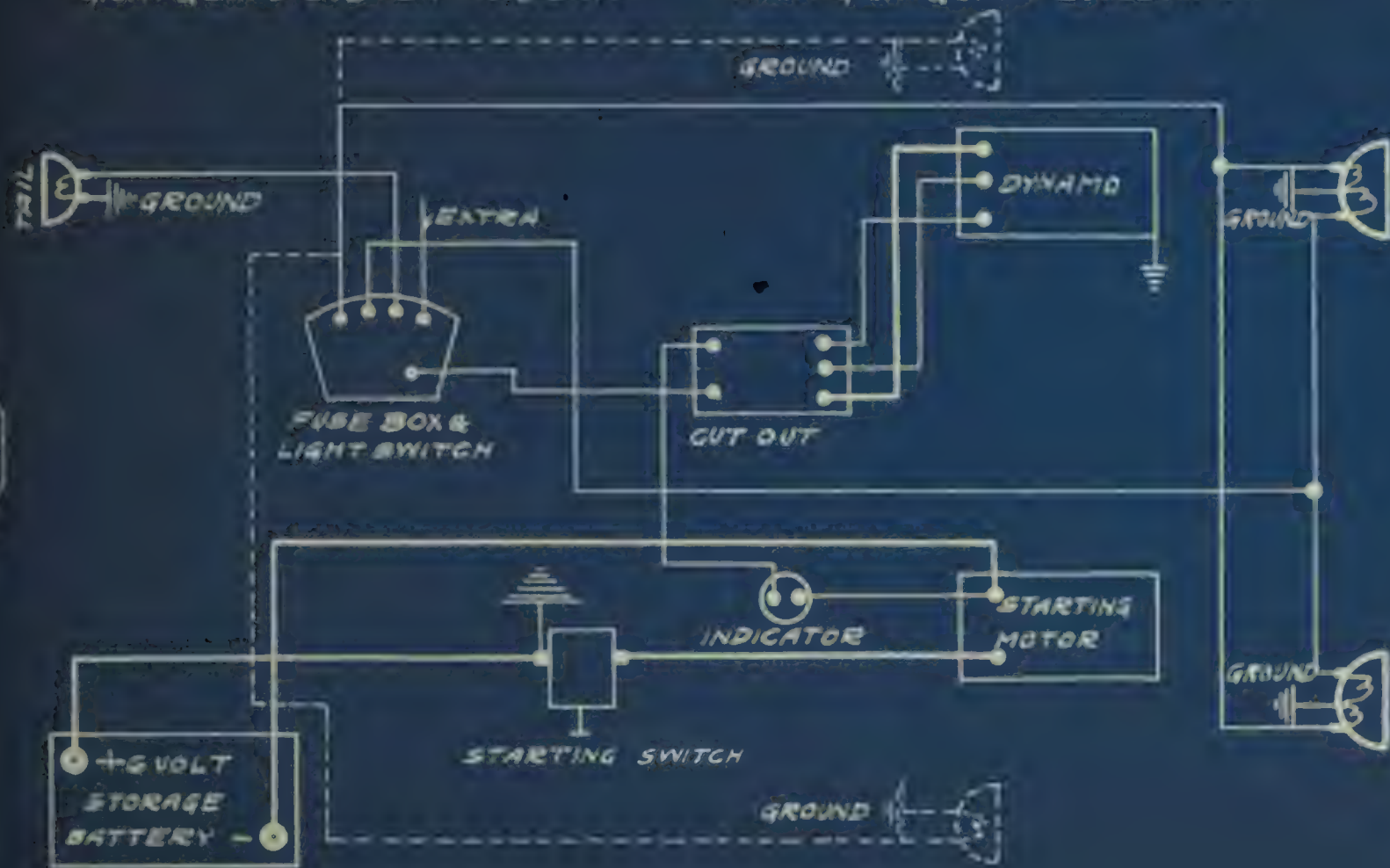
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# FORD

## GRAY & DAVIS SYSTEM - TWO UNIT -

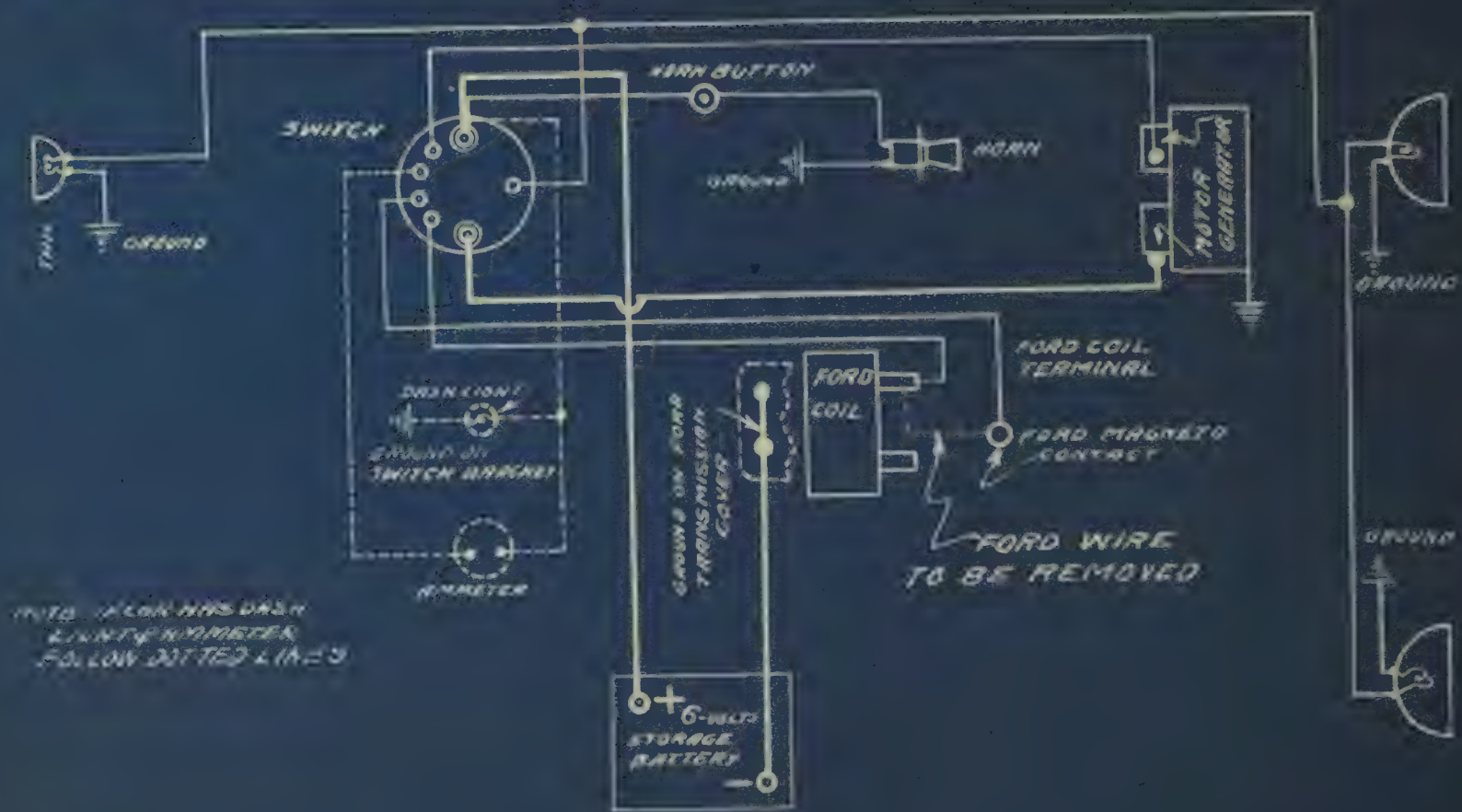
## FROM GRAY & DAVIS BULLETIN Y.T.



# FORD HEINZE-SPRINGFIELD SYSTEM

-MODEL 33-

FROM FACTORY DP 1340



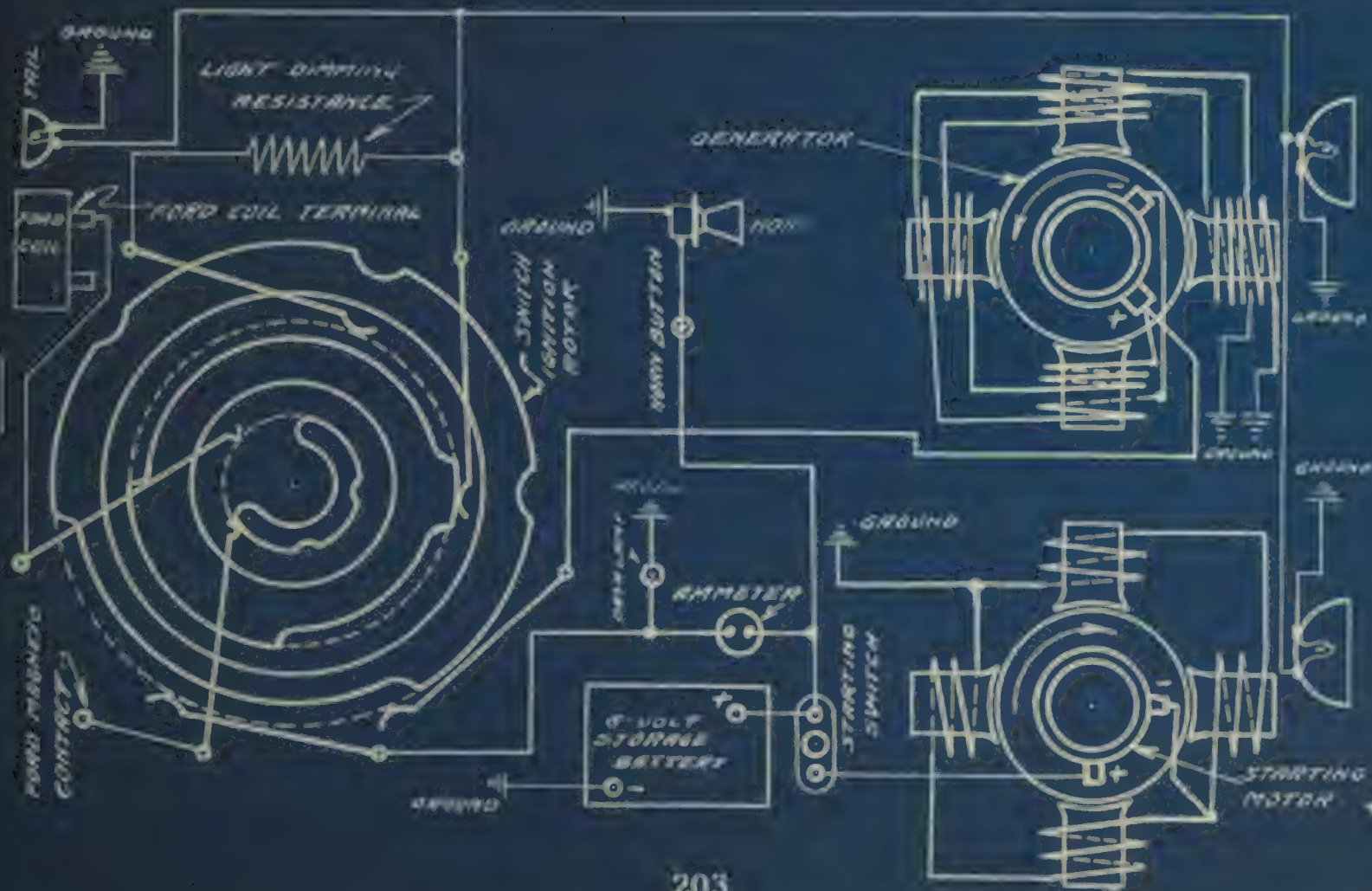
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# FORD HEINZE-SPRINGFIELD SYSTEM

- MODEL 33 - INTERNAL WIRING

FROM FACTORY BR 1655

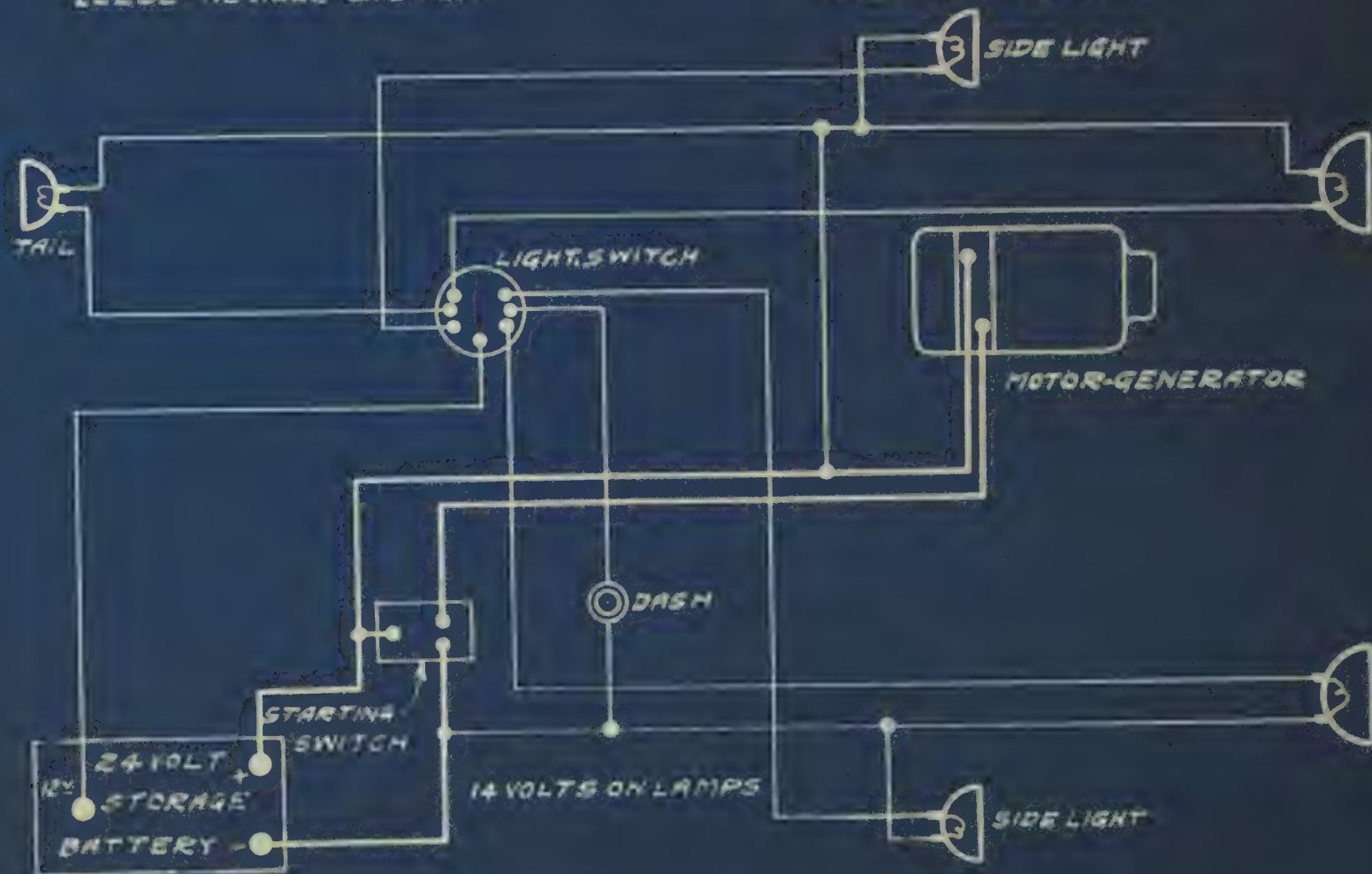
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# FORD LEECE-NEVILLE SYSTEM

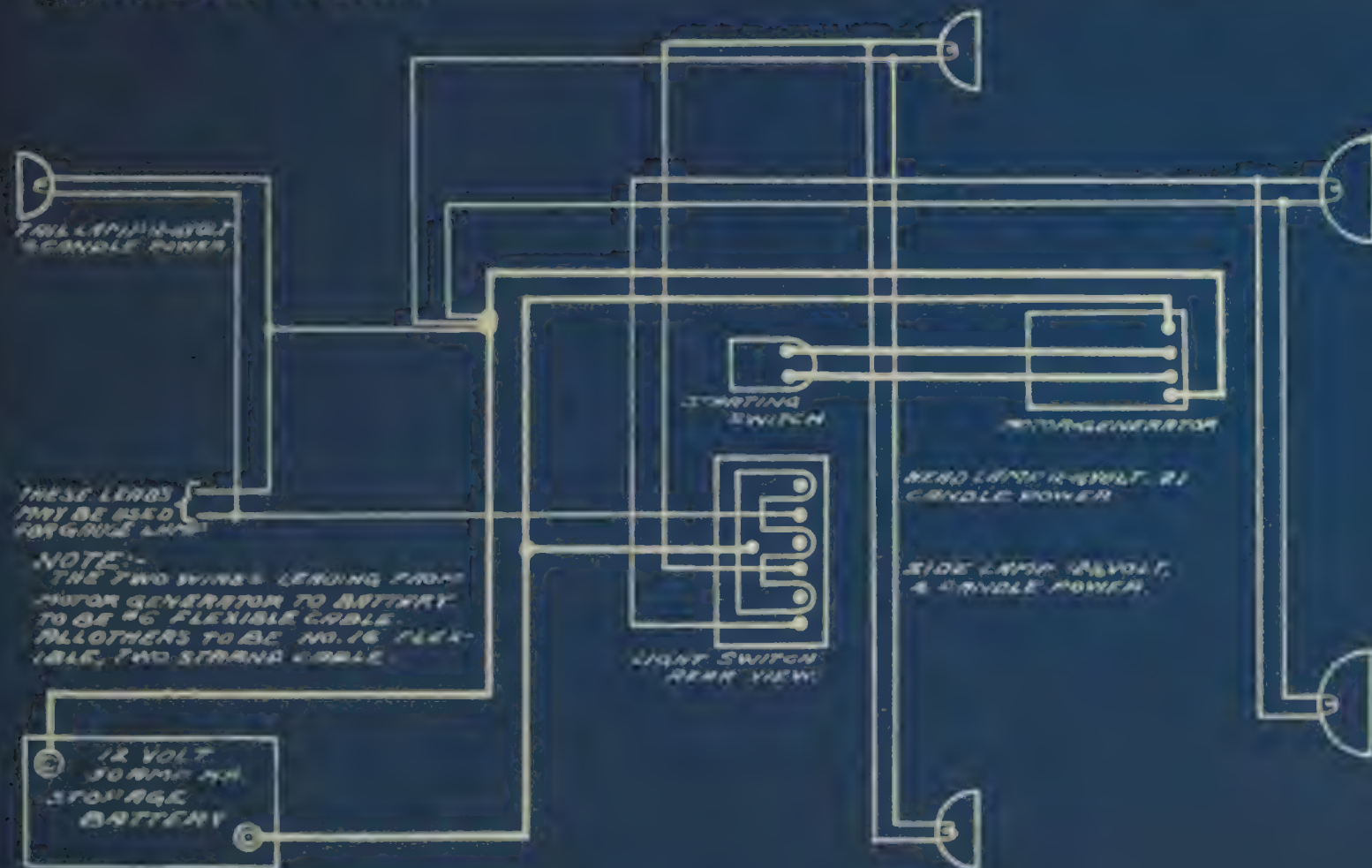
FROM L.N. BULLETIN



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# FORD 1913 NORTH-EAST SYSTEM

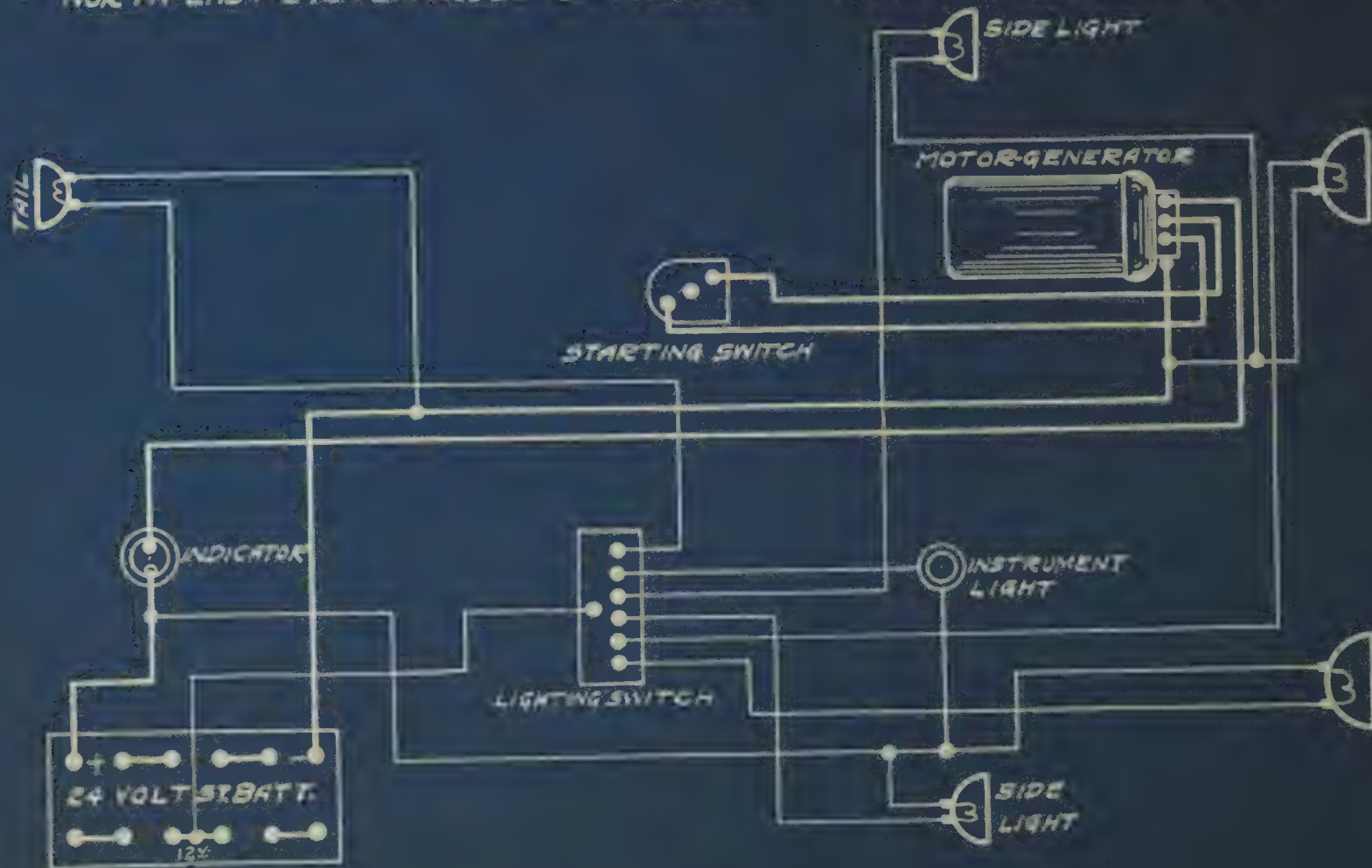
FROM NORTH-EAST BULLETIN NO. 23



# FORD

NORTH-EAST SYSTEM MODEL "D" TYPE 1210

FROM NORTH-EAST PLATE 430

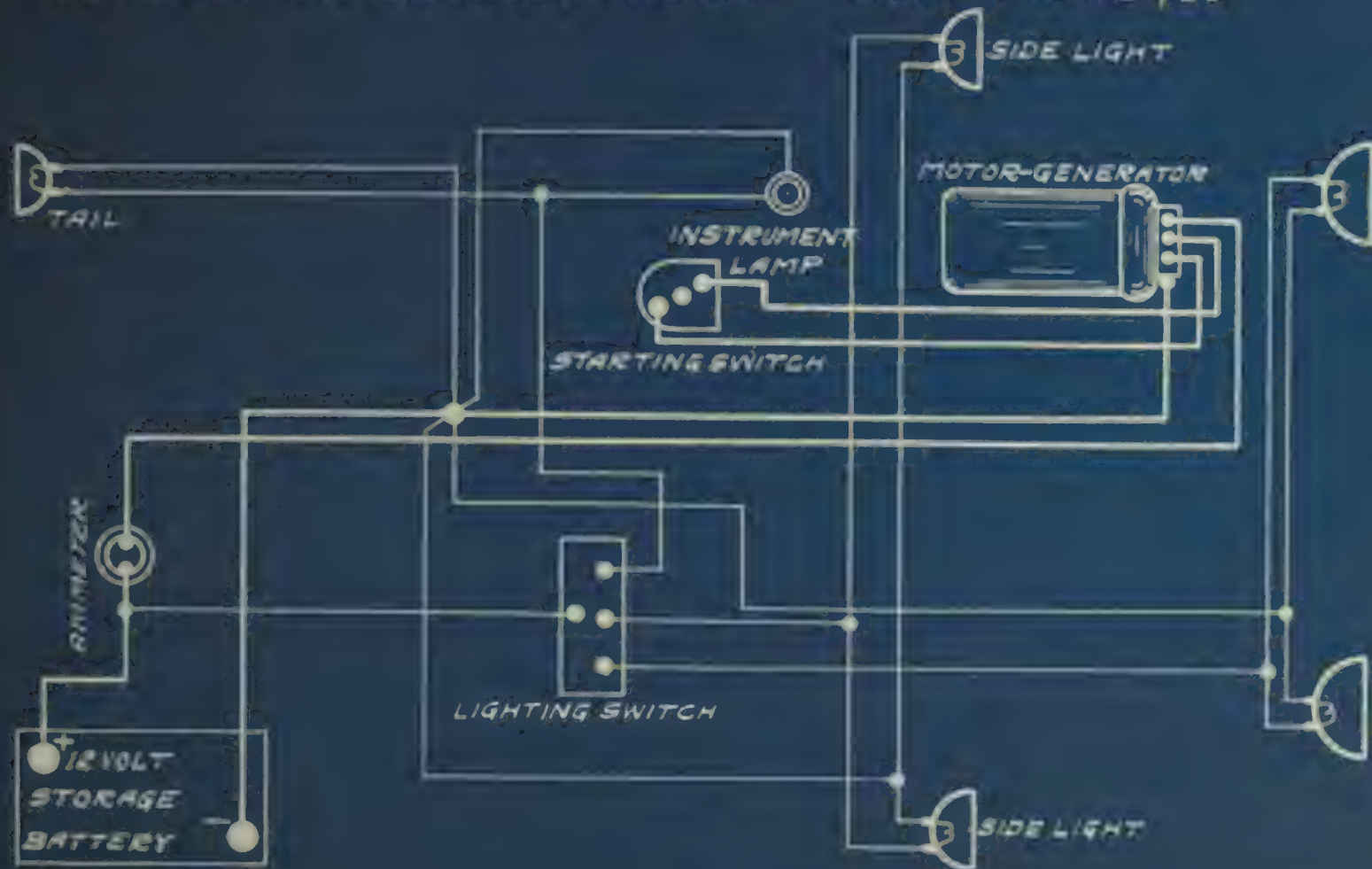




FORD

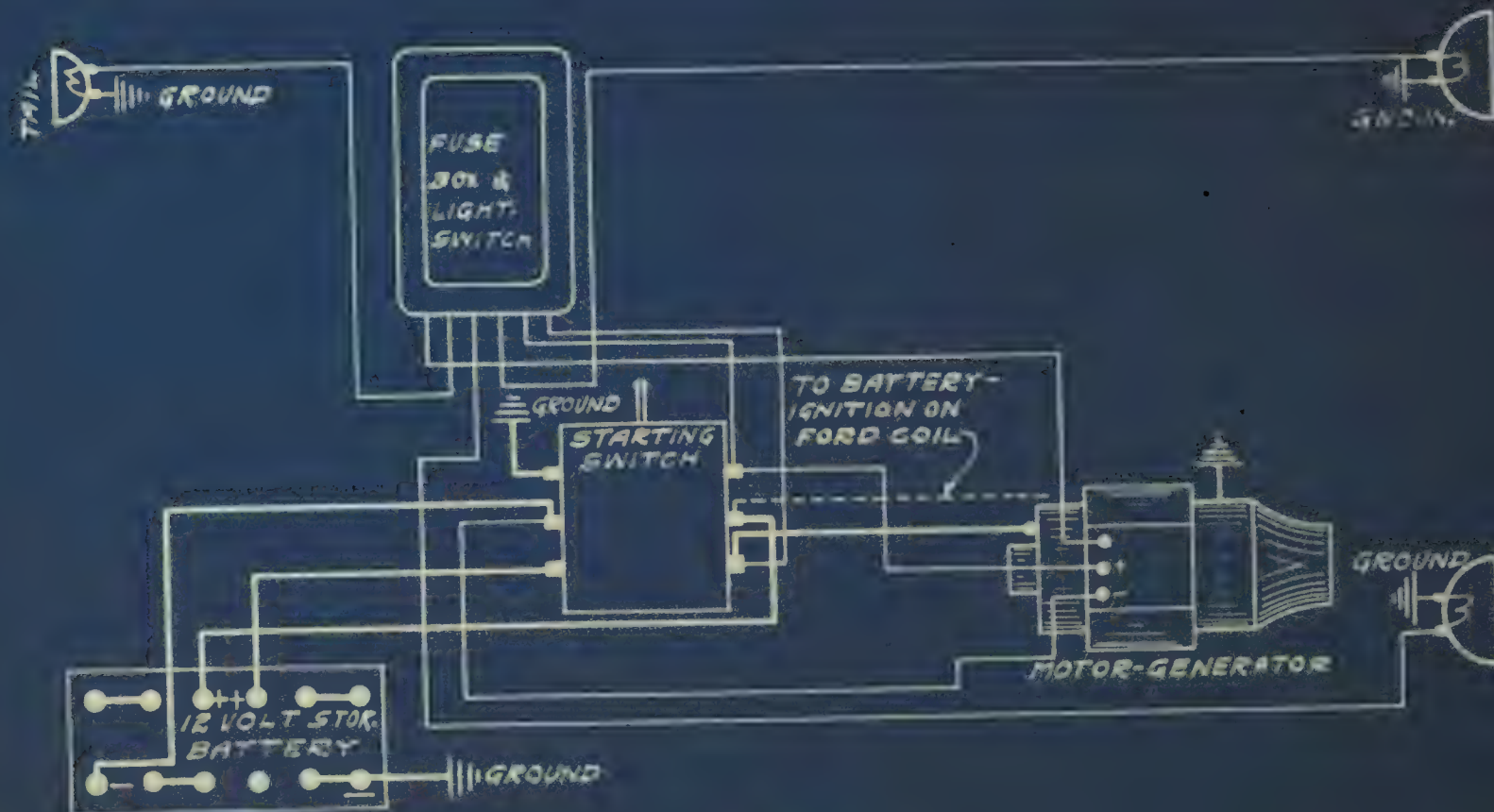
NORTH-EAST SYSTEM MODEL D TYPE 1252

FROM NS PLATE 460



# FORD SIMMS-HUFF SYSTEM

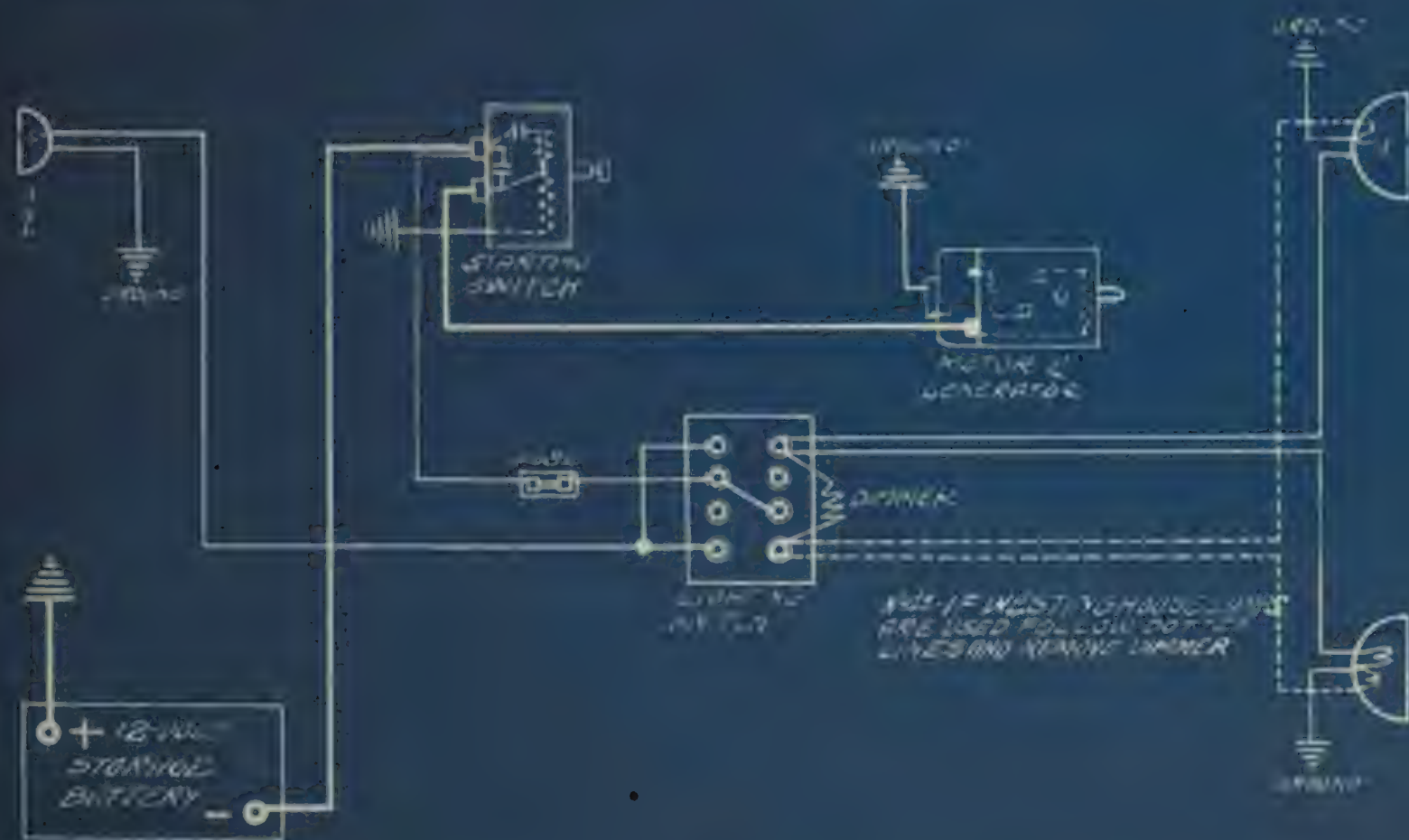
FROM SIMMS-HUFF BULLETIN 16



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New York, N. Y.

# FORD WESTINGHOUSE SYSTEM

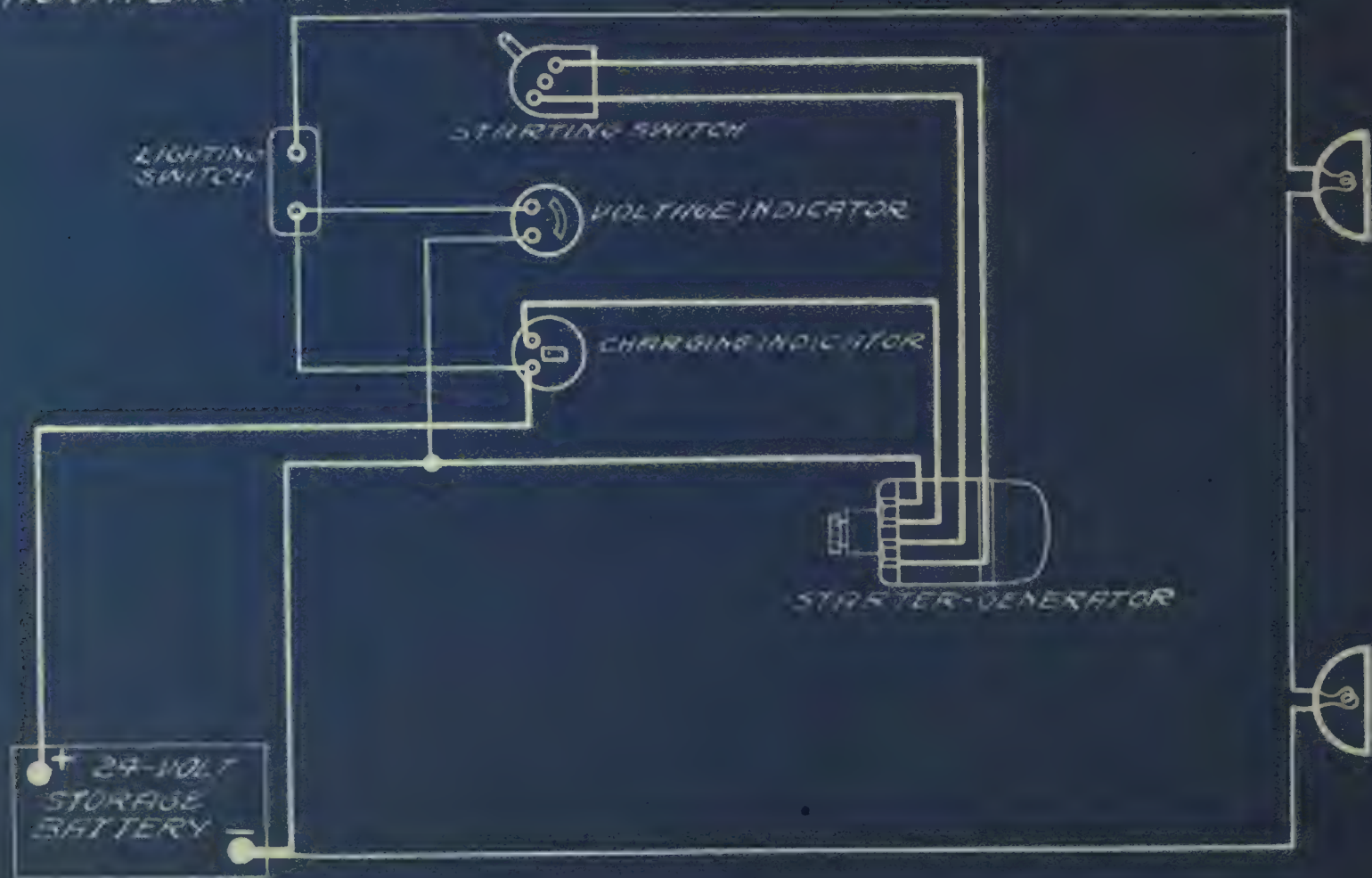
FROM WESTINGHOUSE SYSTEM





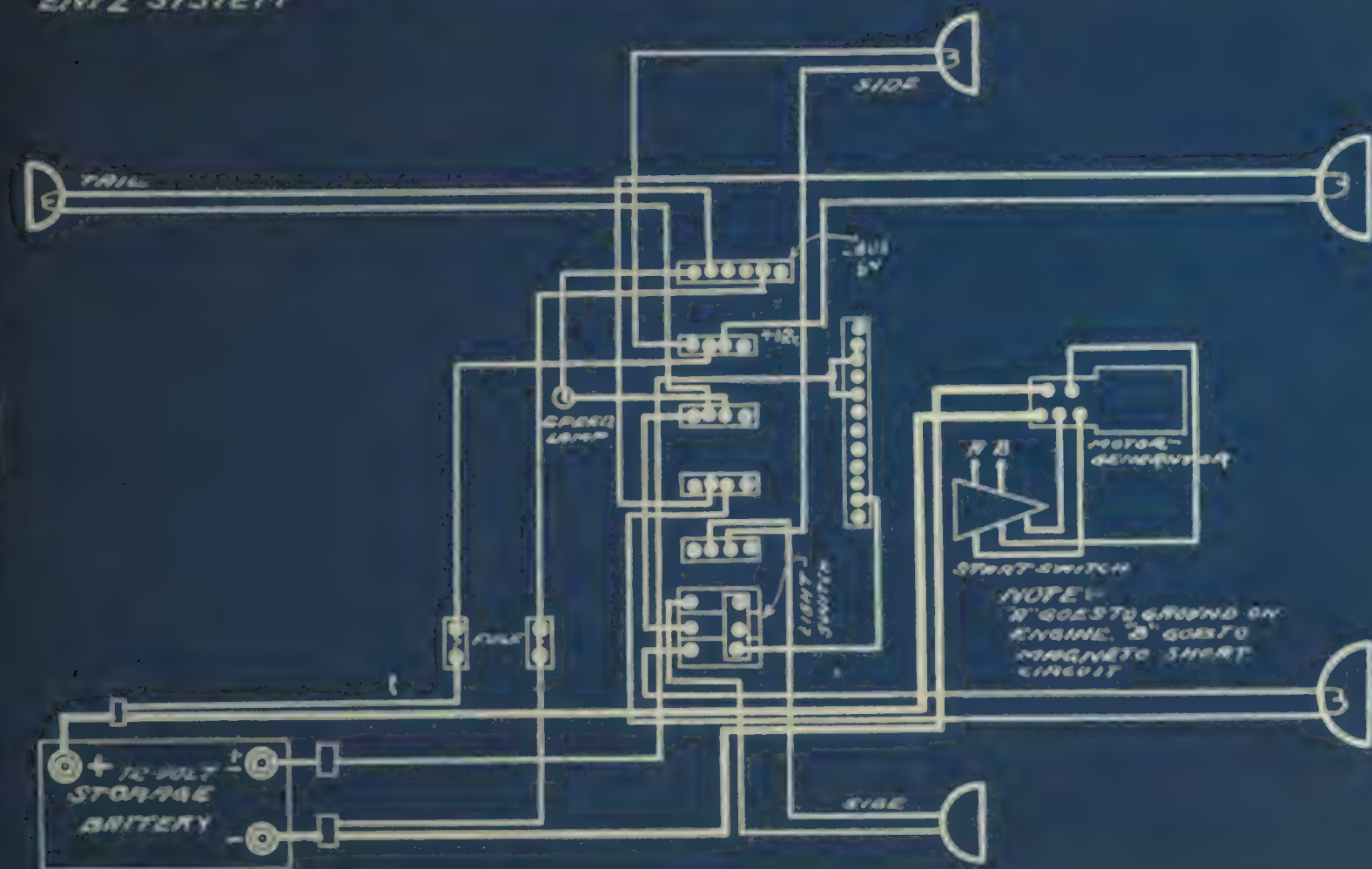
# FOUR WHEEL DRIVE TRUCK NORTH-EAST SYSTEM

FROM N.E. PLATE 410



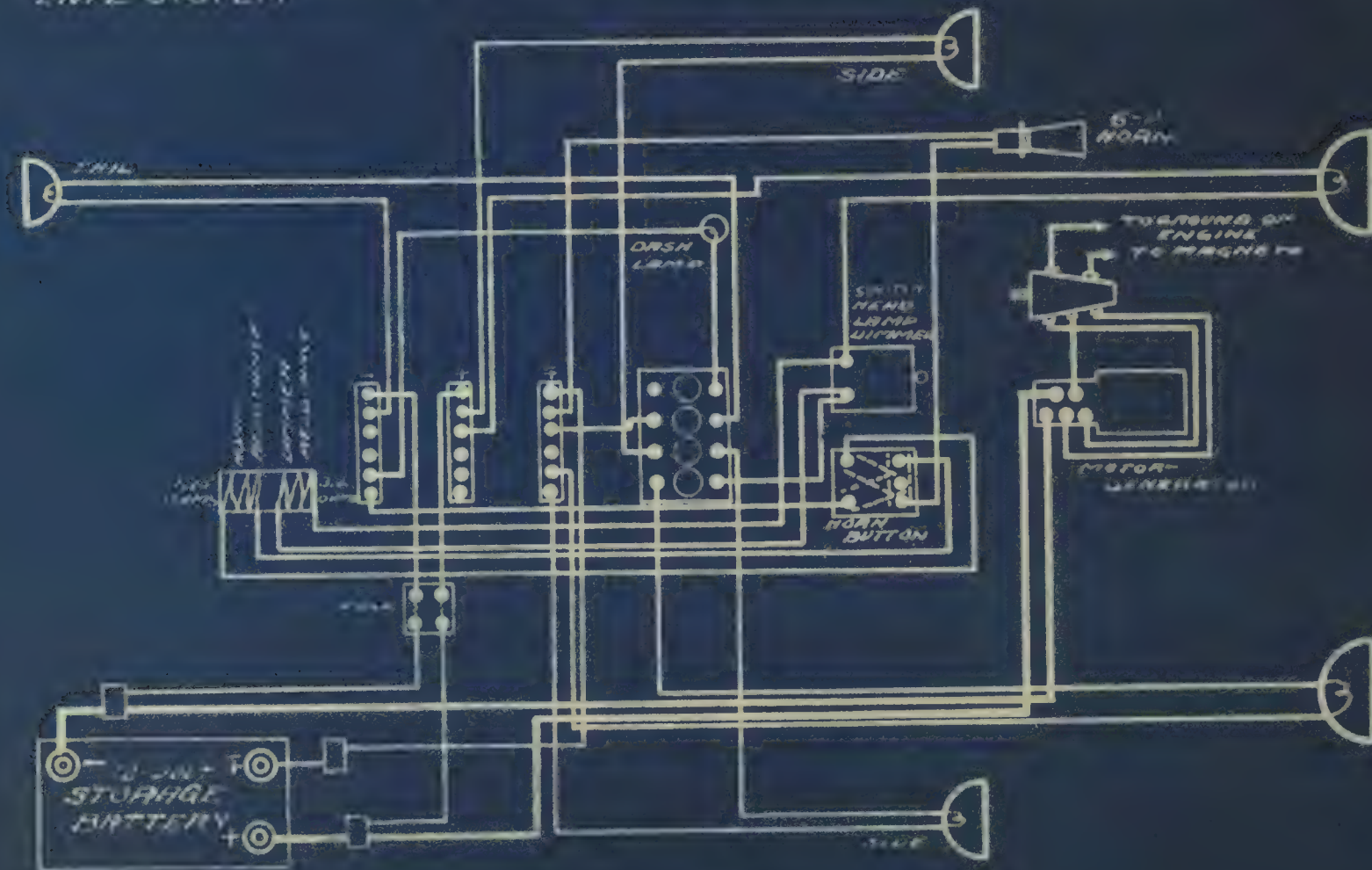
# FRANKLIN 1913-14 SERIES R-D-H-M ENTZ SYSTEM

FROM FRANKLIN B. R. NO. 52 & 10537



# FRANKLIN 1913-14 SERIES 3-M ENGINE SYSTEM

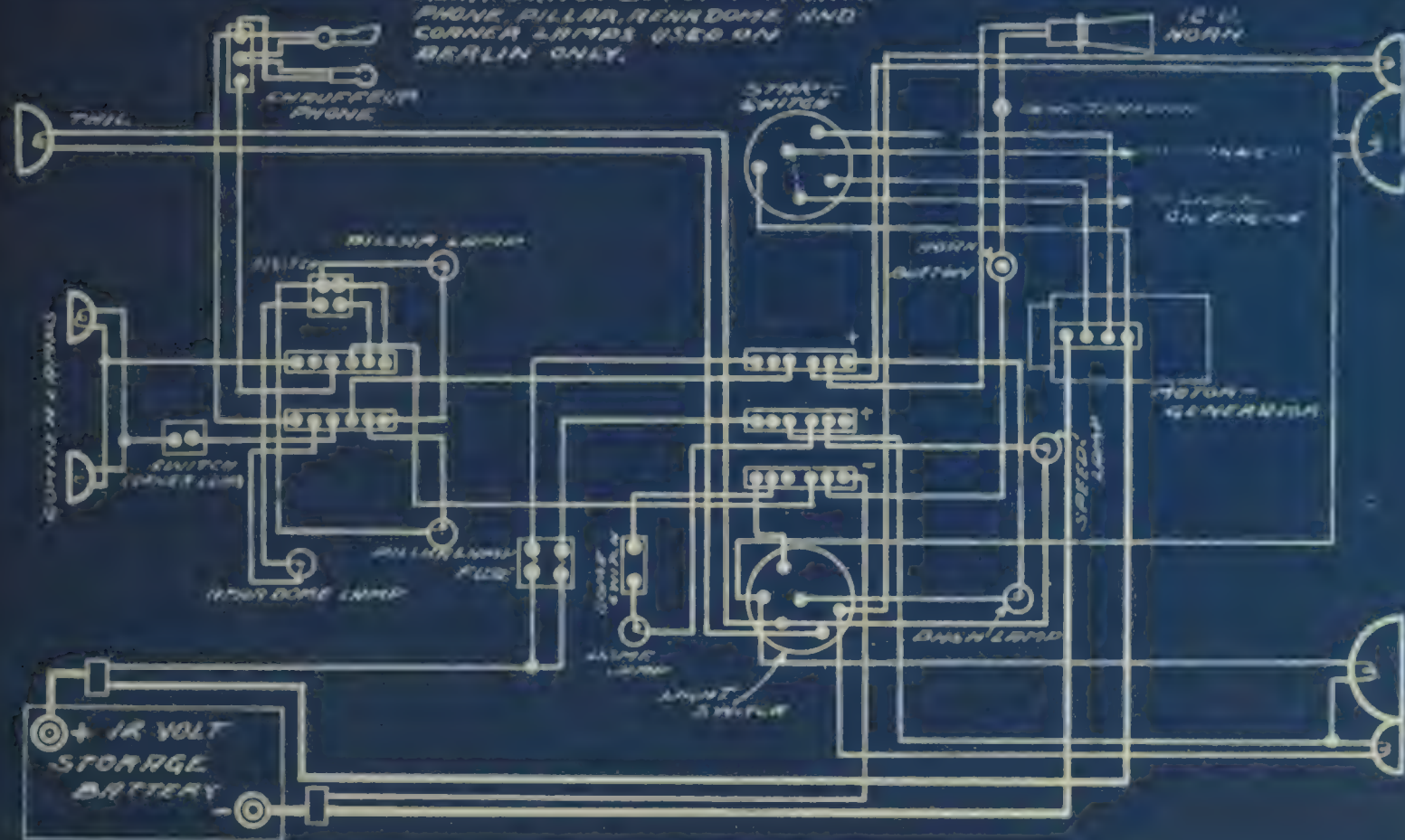
FROM FRANKLIN B.P. 12355 & 18531



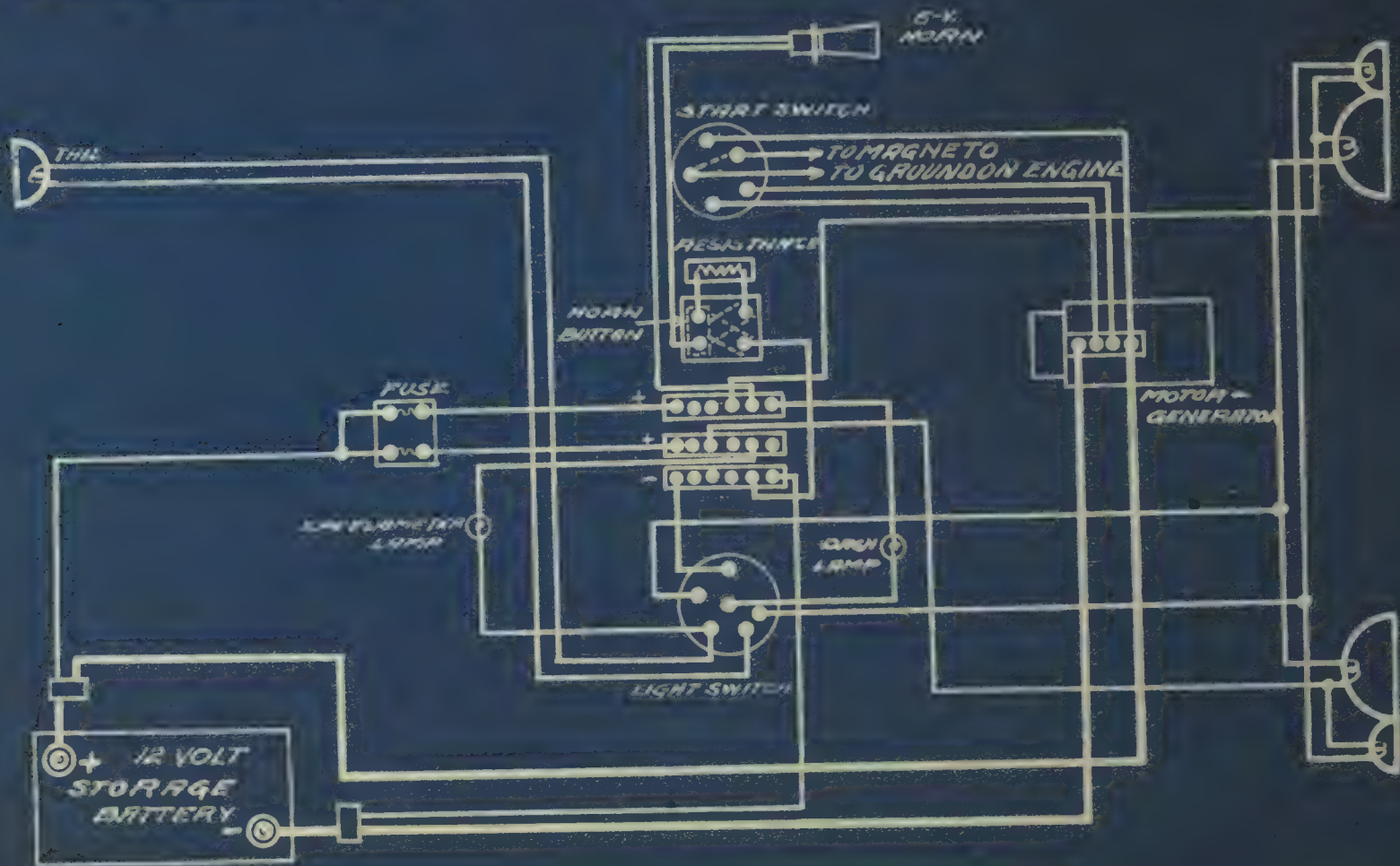


**FRANKLIN 1914-15-16 SERIES 6-M FROM FRANKLIN B.P. (19653 & 19731)**  
**ENTZ SYSTEM USED ON COUPE & BERLIN TYPES**

NOTE—  
 REAR SWITCH BOX SYSTEM WITH  
 PHONE, PILLAR, REAR DOME AND  
 CORNER LAMPS USED ON  
 BERLIN ONLY.



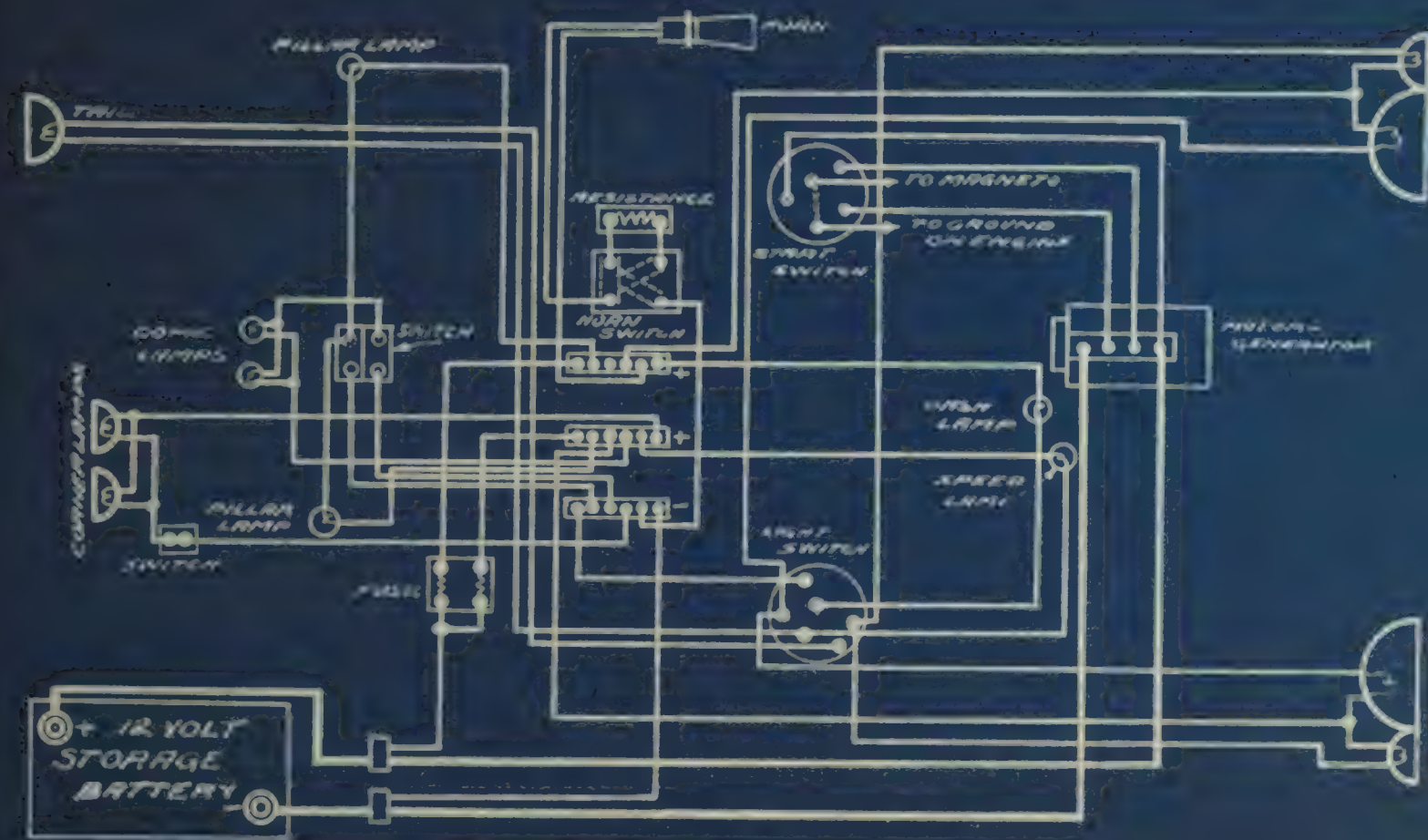
**FRANKLIN 1914-15-16 SERIES 6-M FROM FRANKLIN B P 19591**  
**ENTZ SYSTEM USED ON RUNABOUT & TOURING TYPES**



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 CHICAGO, U.S.A.

PAUL F. HILGREN B. 1928

### ENTZ SYSTEM USED ON SEORN TYPE

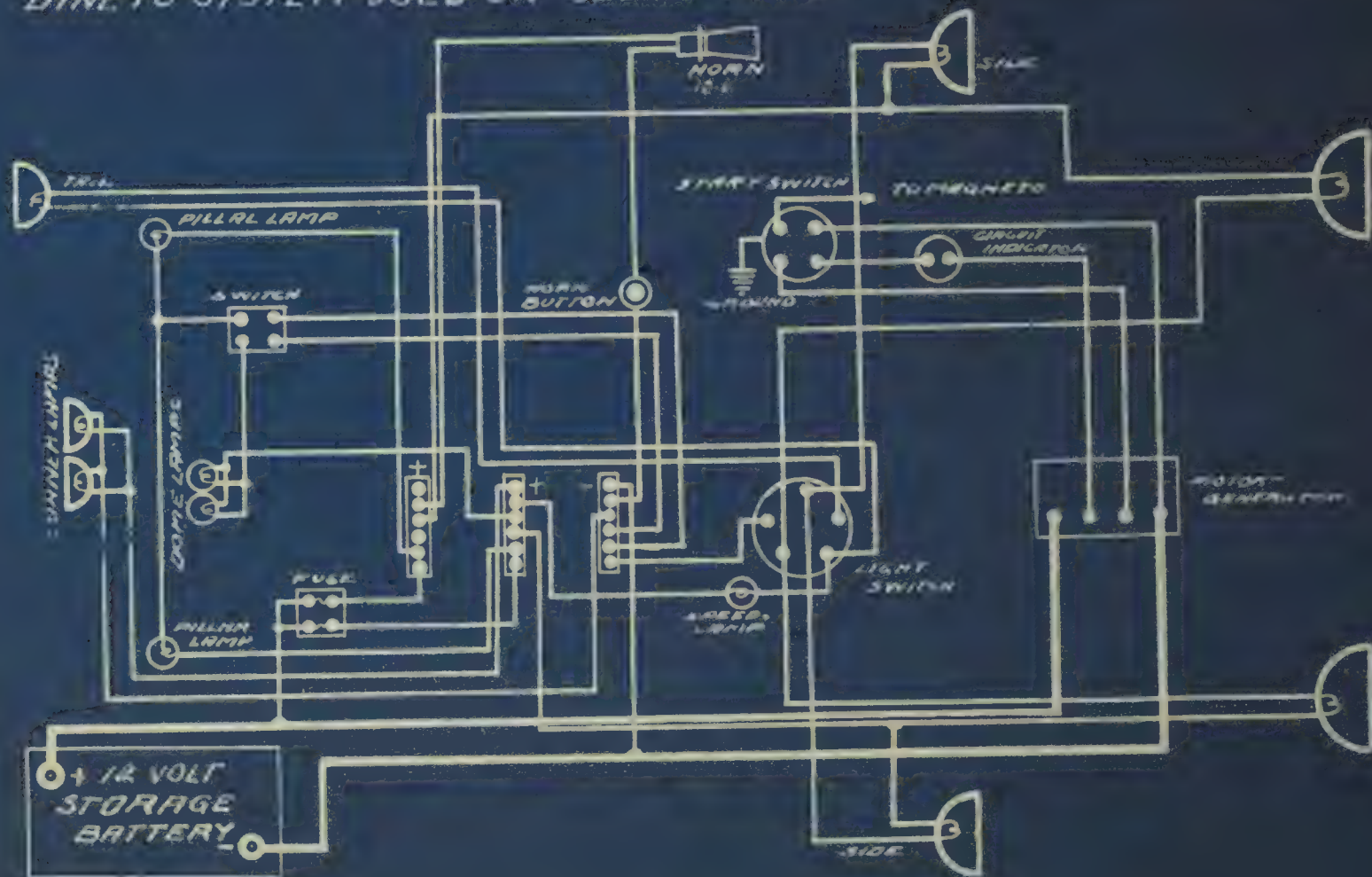




# FRANKLIN 1915

DYNETO SYSTEM USED ON SEDAN TYPE

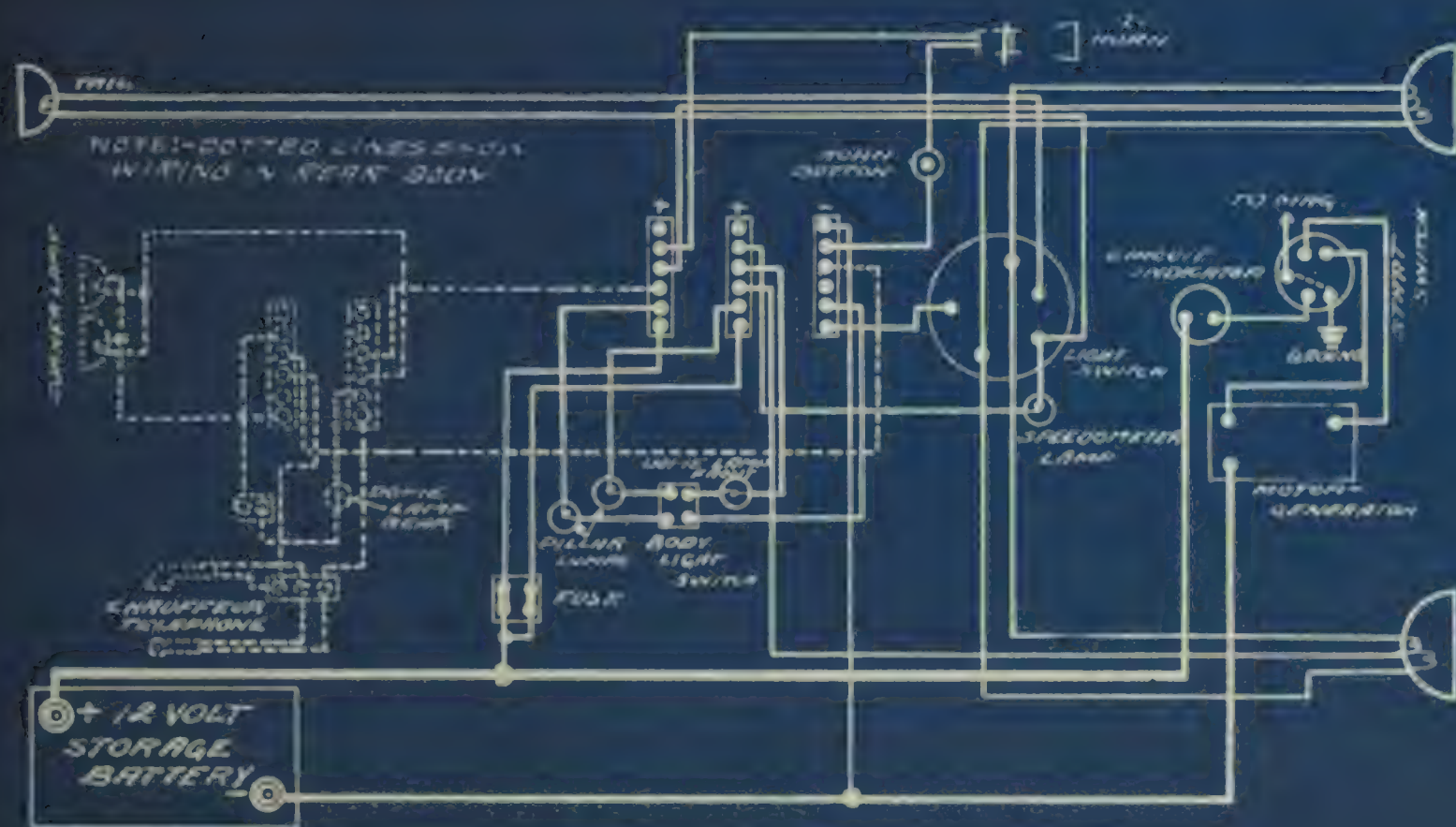
FROM FRANKLIN BP 20028



# FRANKLIN 1916

DYNETO SYSTEM USED ON BERLINER TYPE

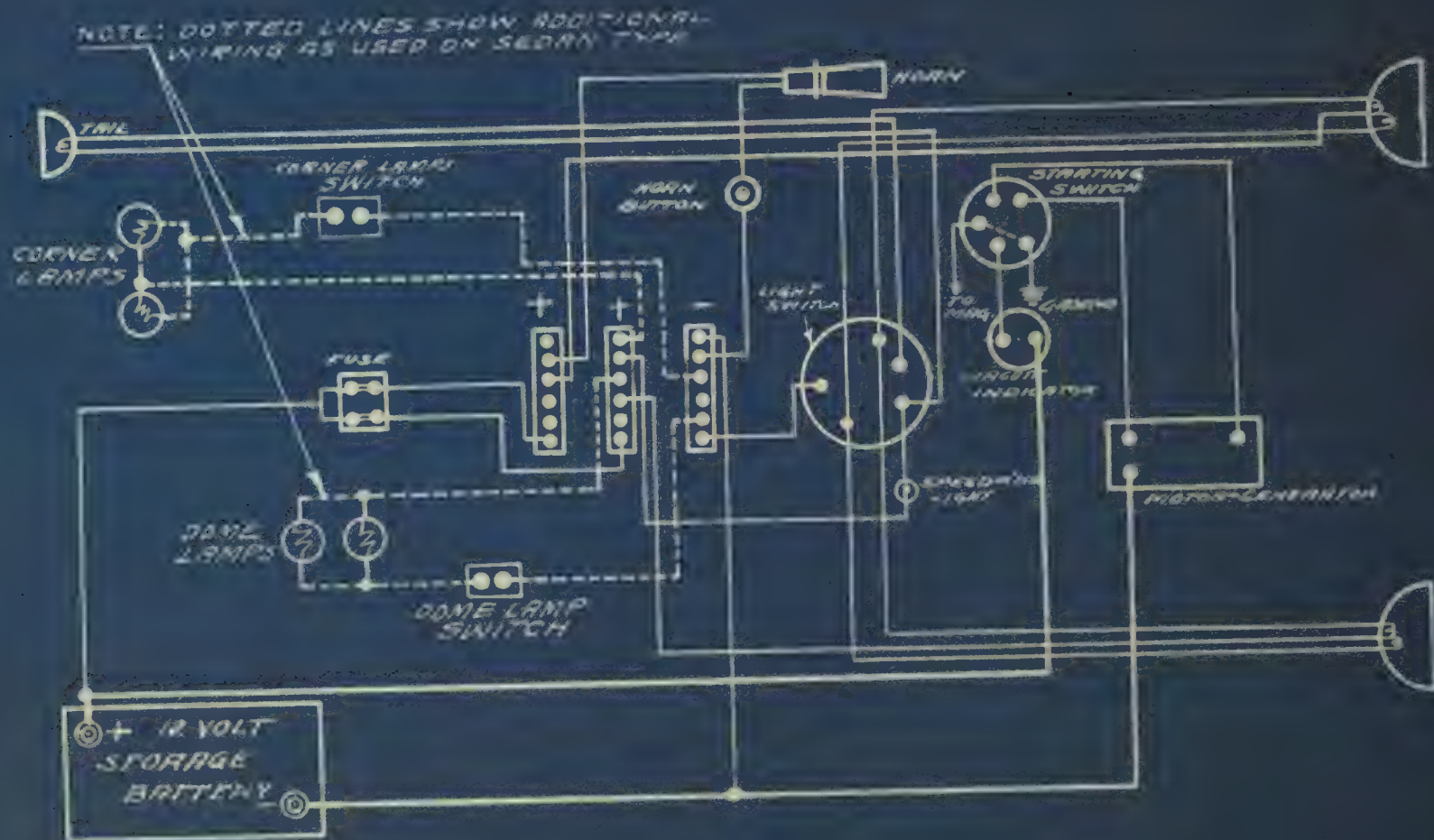
FROM FRANKLIN B.P. 20342



# FRANKLIN 1916 SERIES 8-M

FROM FRANKLIN D.P. 20711

DYNETO SYSTEM USED ON RUNABOUT - TOURING - CONVERTIBLE SEDAN TYPES



Automotive Engineering Co.  
INCORPORATED



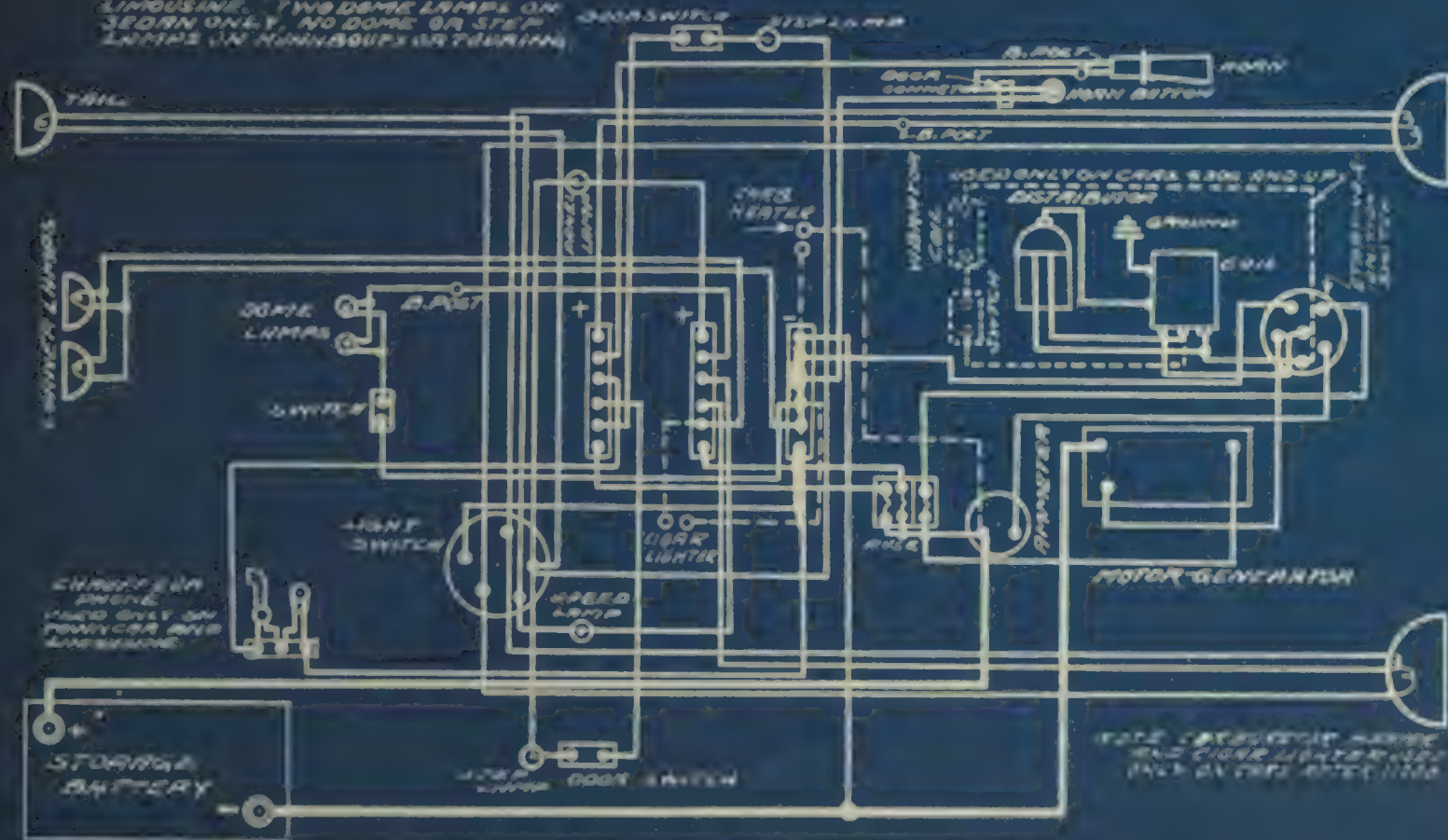
FRANKLIN 1917-18-19-20

SERIES 9

FROM FRANKLIN BLUE PRINTS

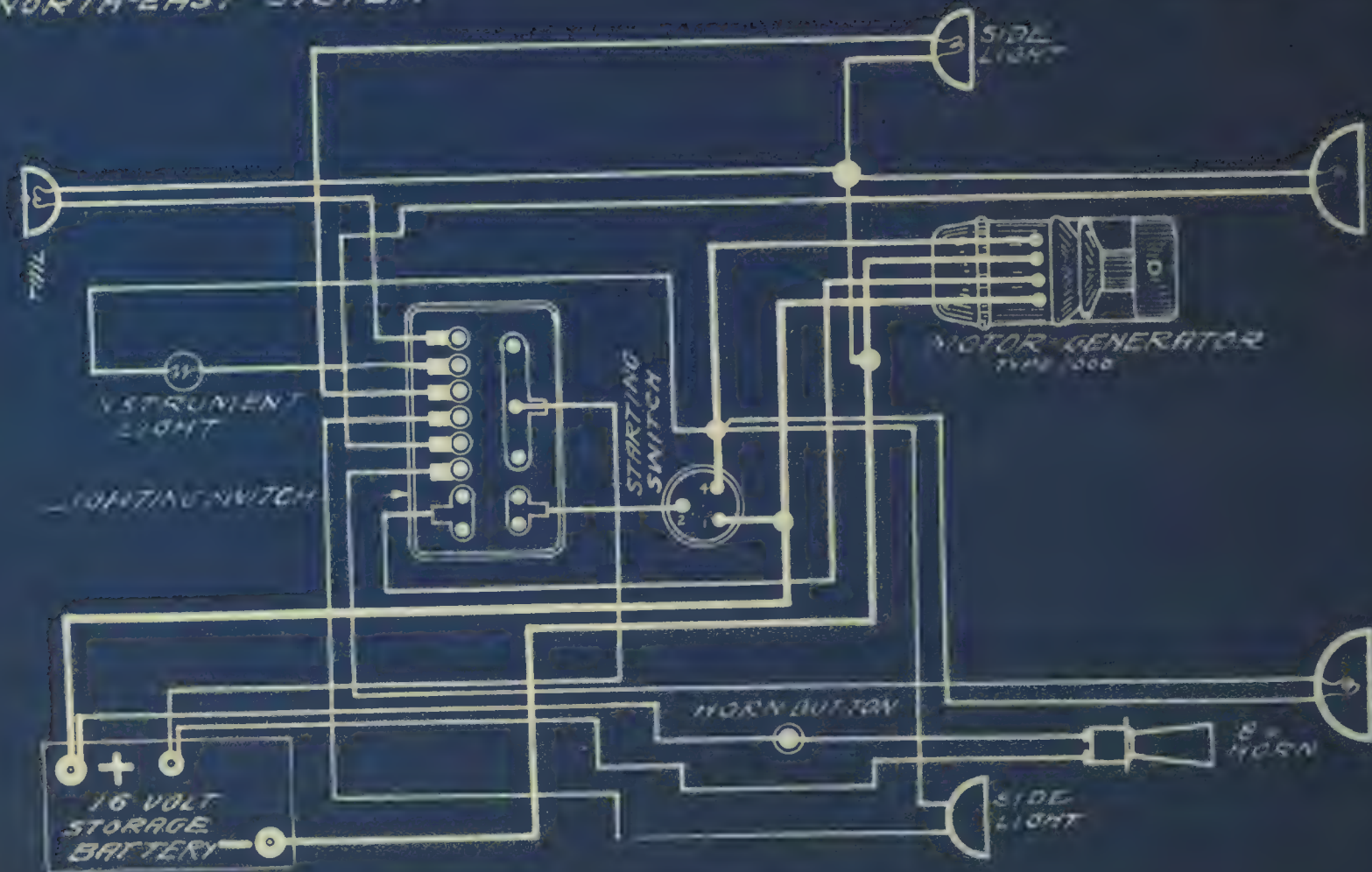
DYNETO SYSTEM - R R IGNITION USED ON ALL MODELS - FIRST 8700 CARS

NOTE -  
CORNER LIGHTS USED ONLY ON  
COACHMAN, SEDAN, TOWN CAR AND  
LIMOUSINE. TWO DOME LAMPS ON  
SEDAN ONLY, NO DOME OR STEP  
LAMPS IN RUNABOUTS OR TOURING



# GALT 1913 NORTH-EAST SYSTEM

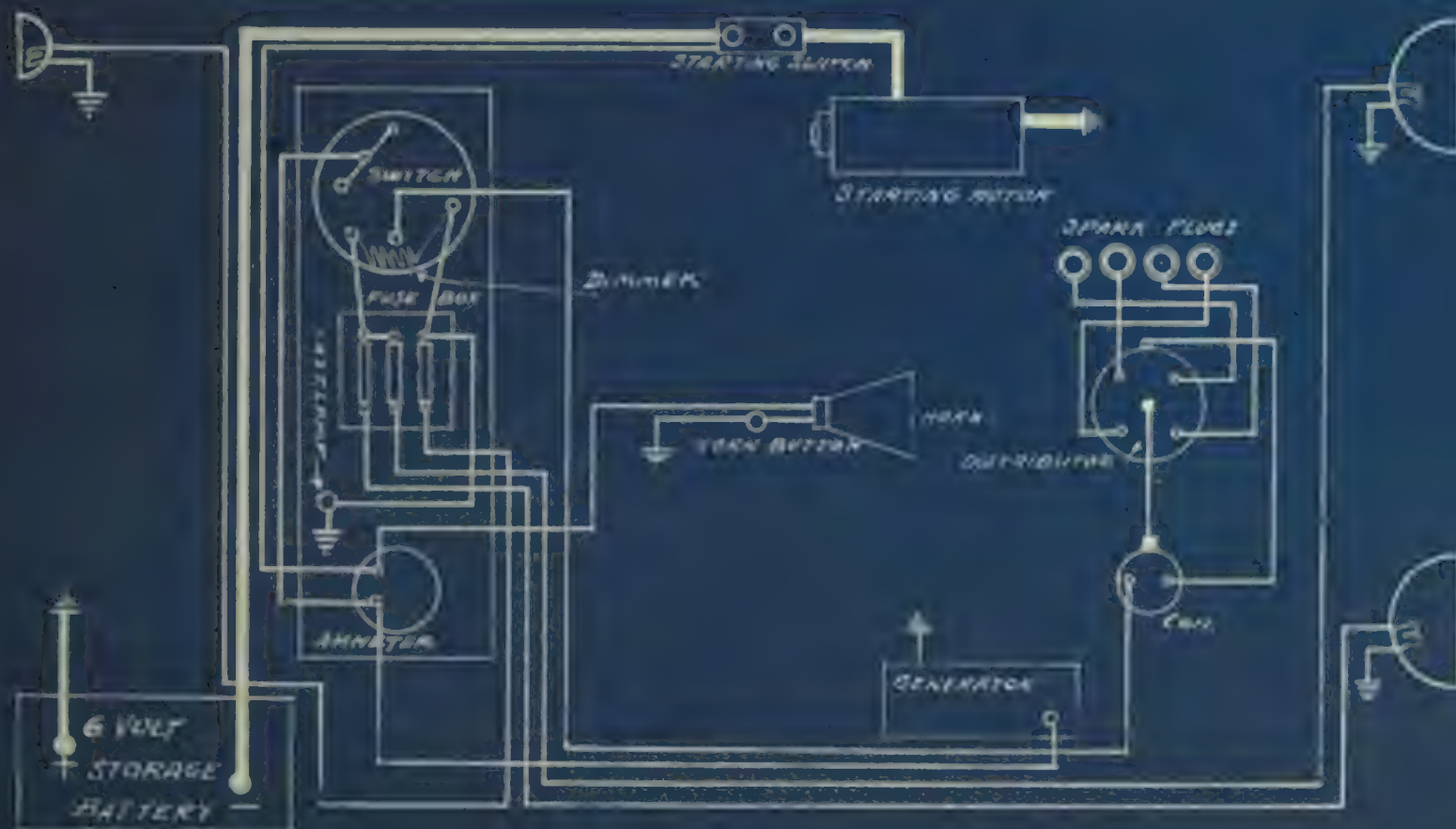
FROM N.E. PLATE - 53



# GARDNER MODEL "G" 1920

WESTINGHOUSE SYSTEM

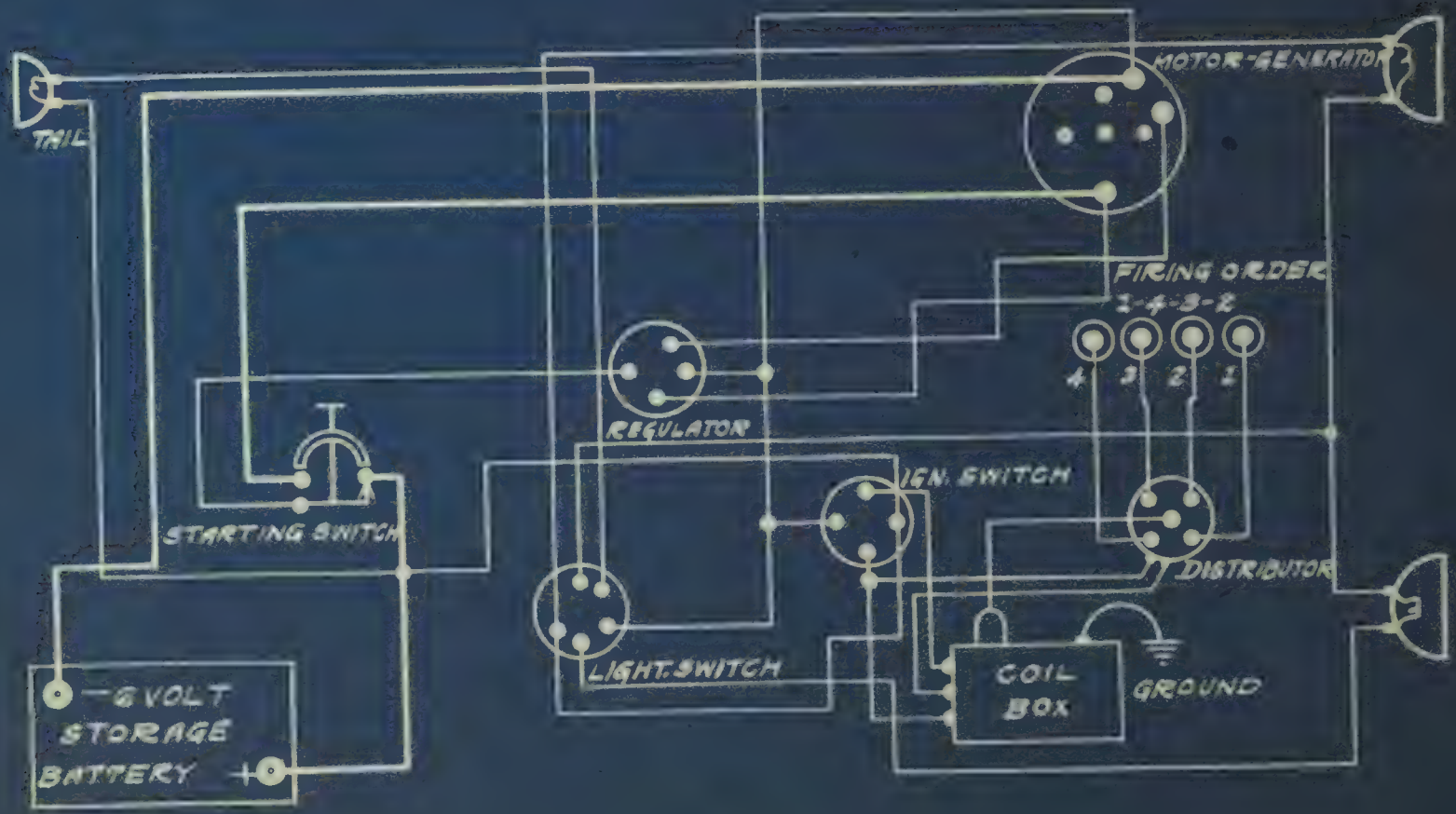
FROM REPAIR B.P.  
X-316B





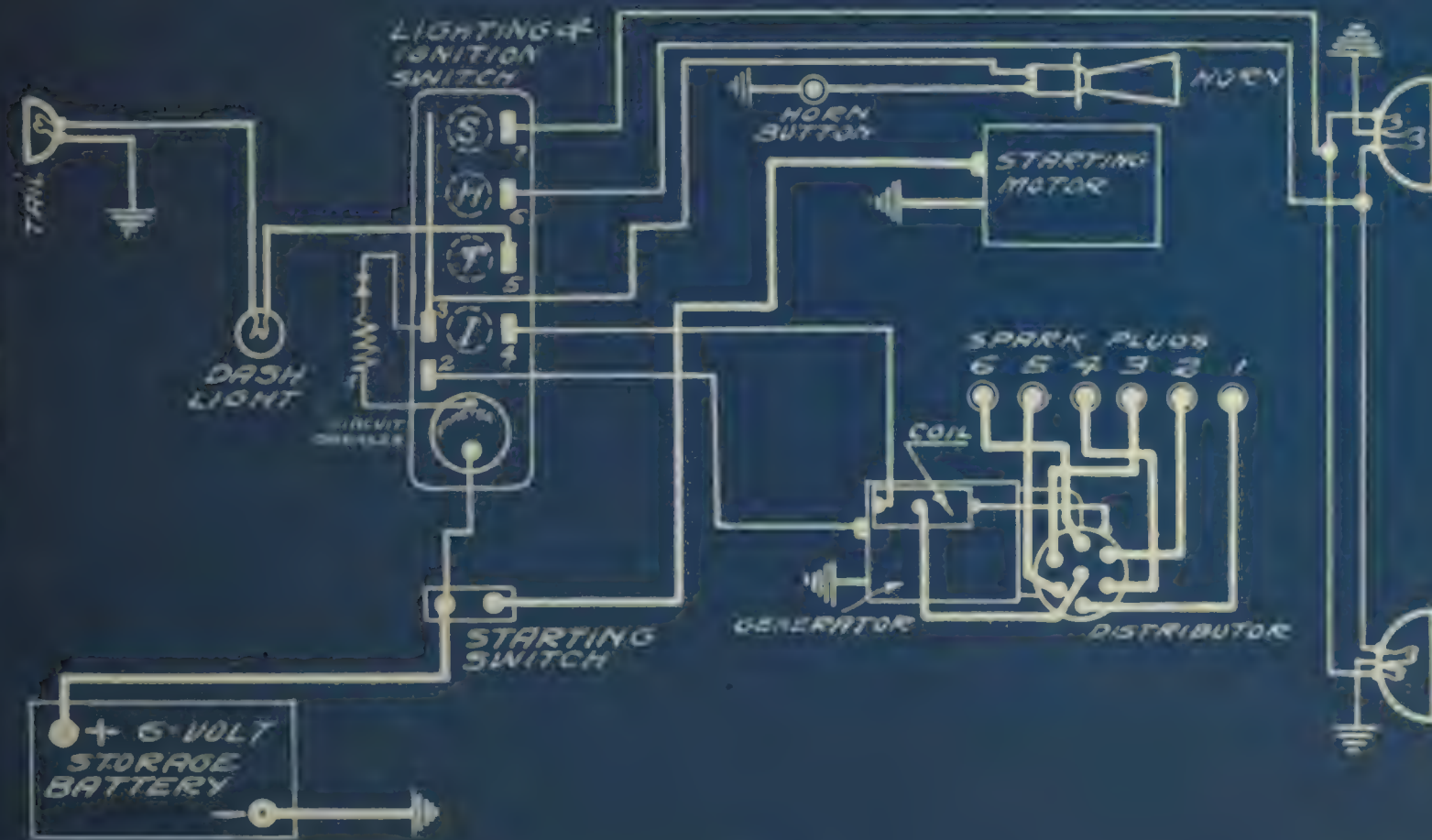
**S.G. GAY & CO. 1915**  
**ALLIS-CHALMERS SYSTEM**

FROM WERS. B.P. X-513



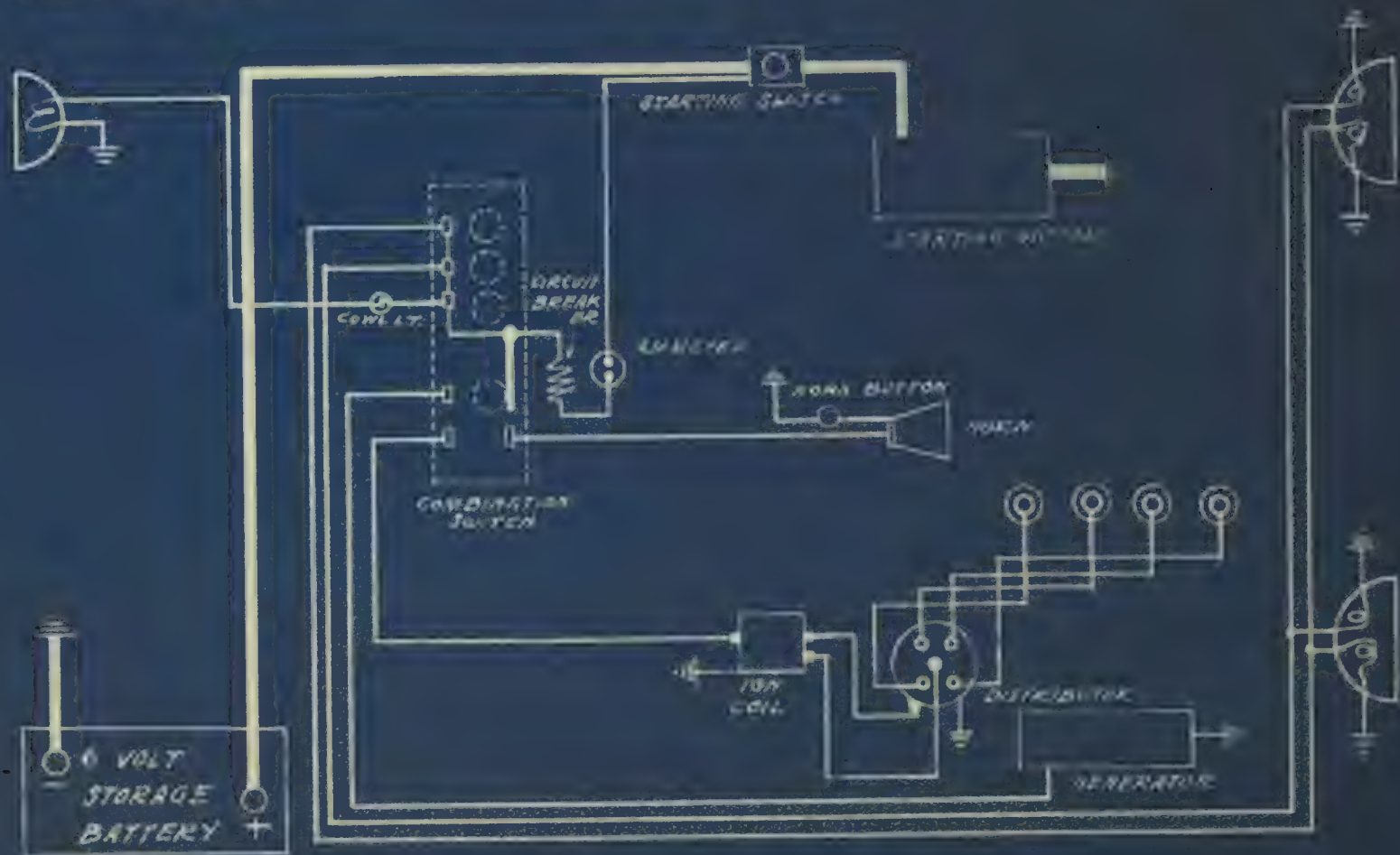
AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL.

**G. M. C. TRUCK 1917 MODELS 15, 25, 26, 30, 31, 40, 41, 70, 71, 100, 101**  
**DELCO SYSTEM** FROM DELCO MANUAL



# GENERAL MOTORS TRUCK ALL MODELS 1919-1920 DELCO SYSTEM

FROM MFRS INST BOOK

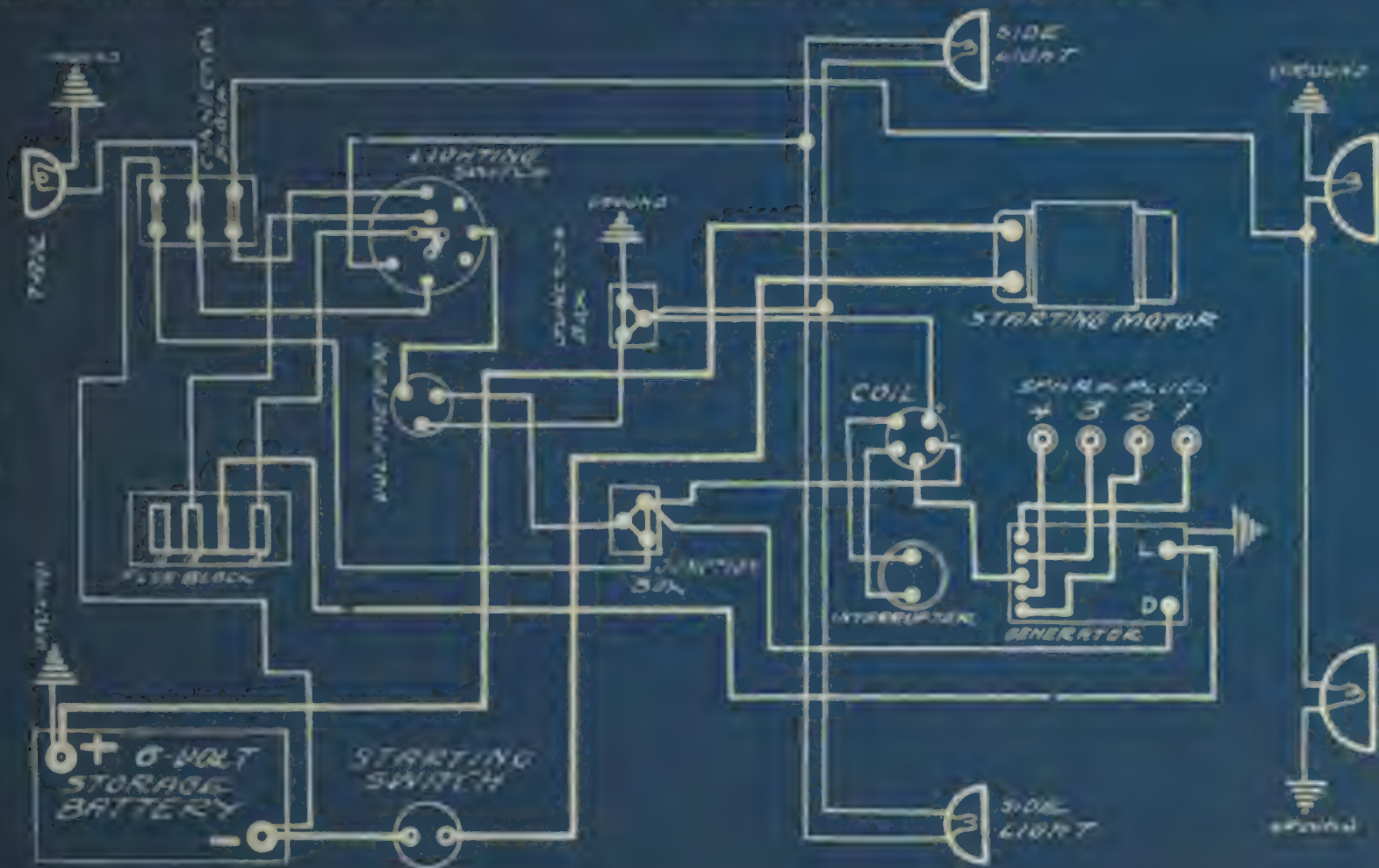




GLIDE 1913-1914  
WESTINGHOUSE SYSTEM

36-42

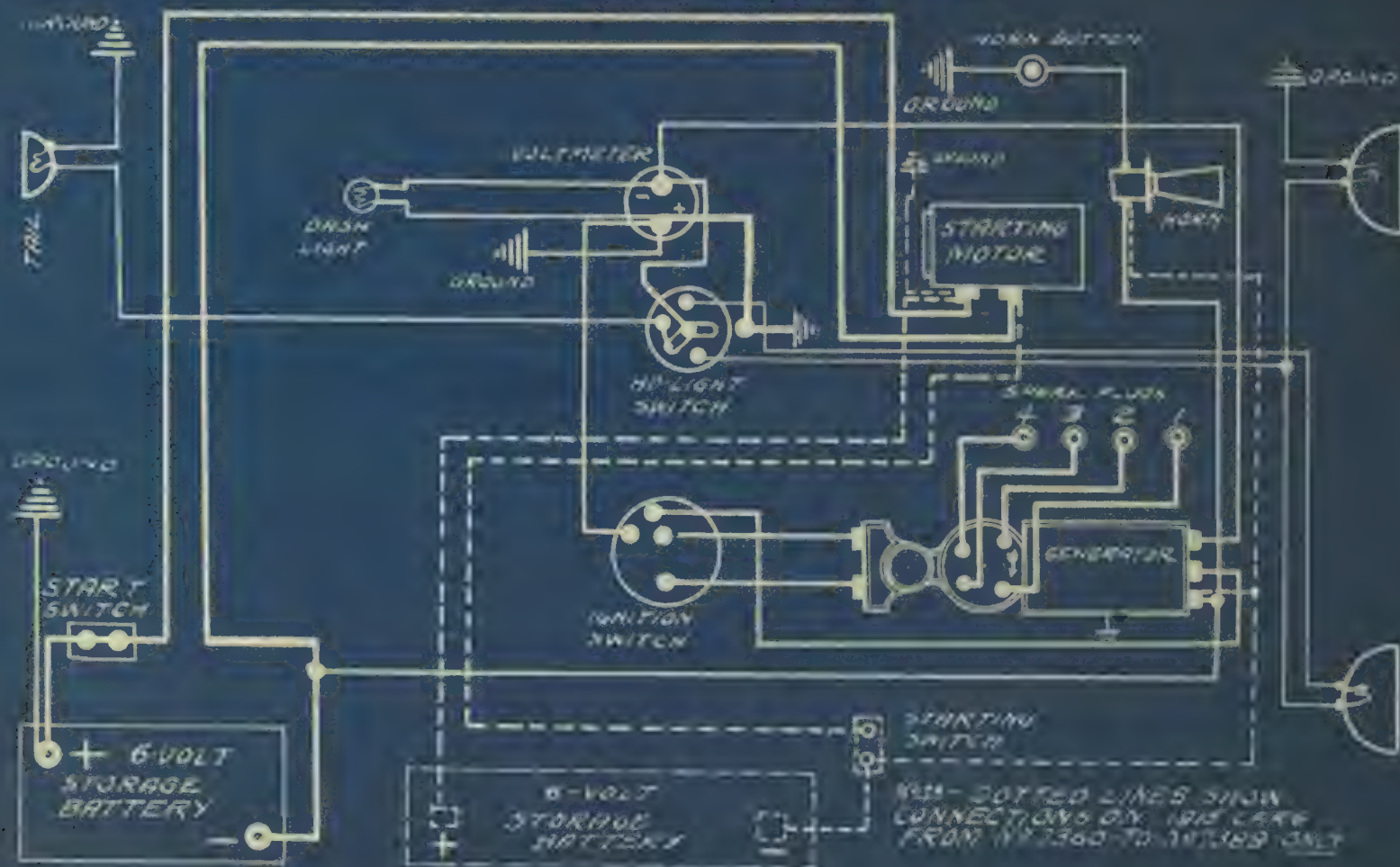
FROM MFRS BLUE PRINT  
- USED ON CARS 5282 AND UP -



WESTINGHOUSE SYSTEM (USED ON CARS FROM #7000-TO-#7360)

FROM MARS BP 14-596

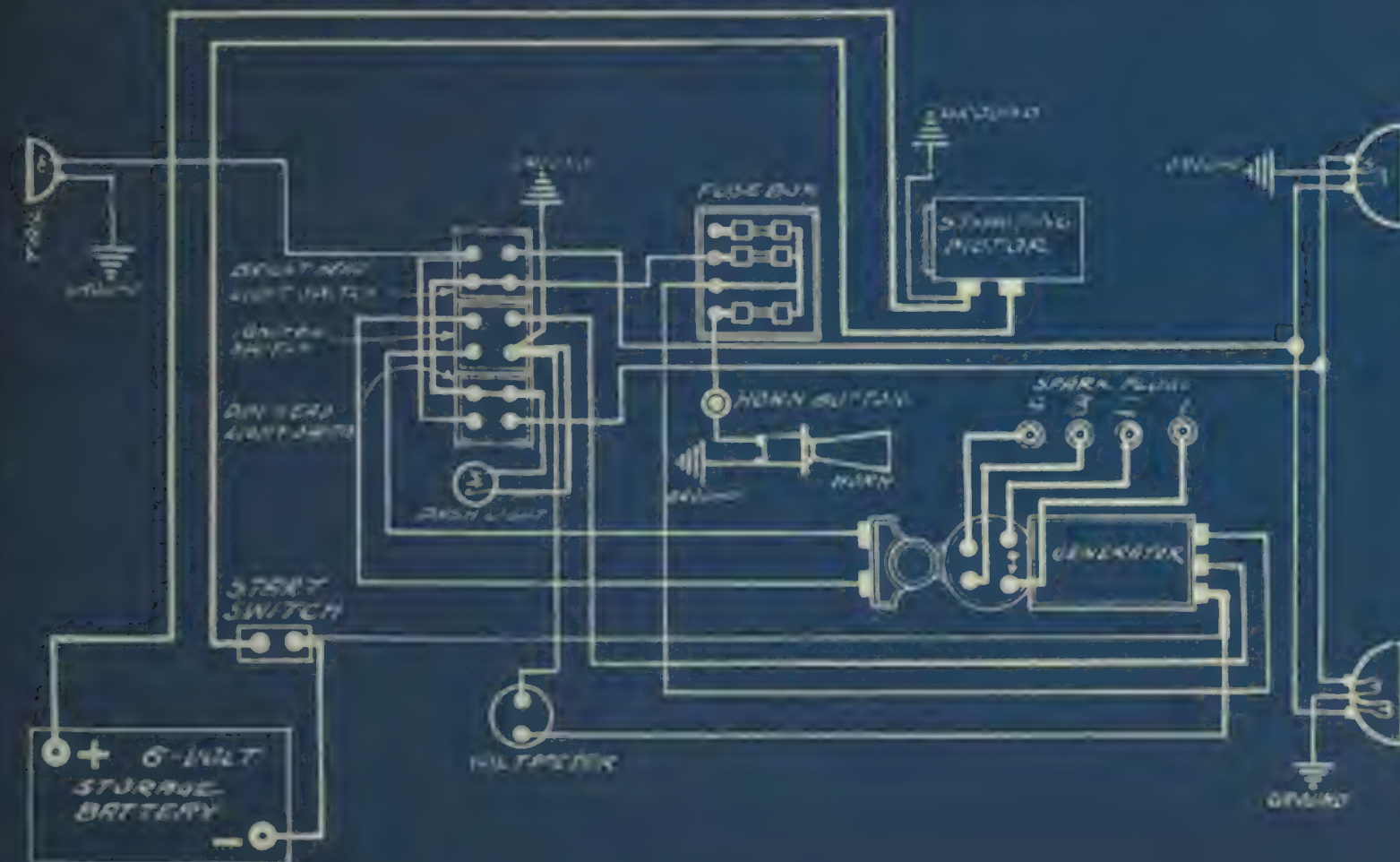
WESTINGHOUSE SYSTEM (USED ON CARS FROM #7000-TO-#7360)



# GLIDE 1915 MODEL 30

WESTINGHOUSE SYSTEM (USED ON CARS FROM #7389-TO-#7698)

FROM MFRS BP 14-688

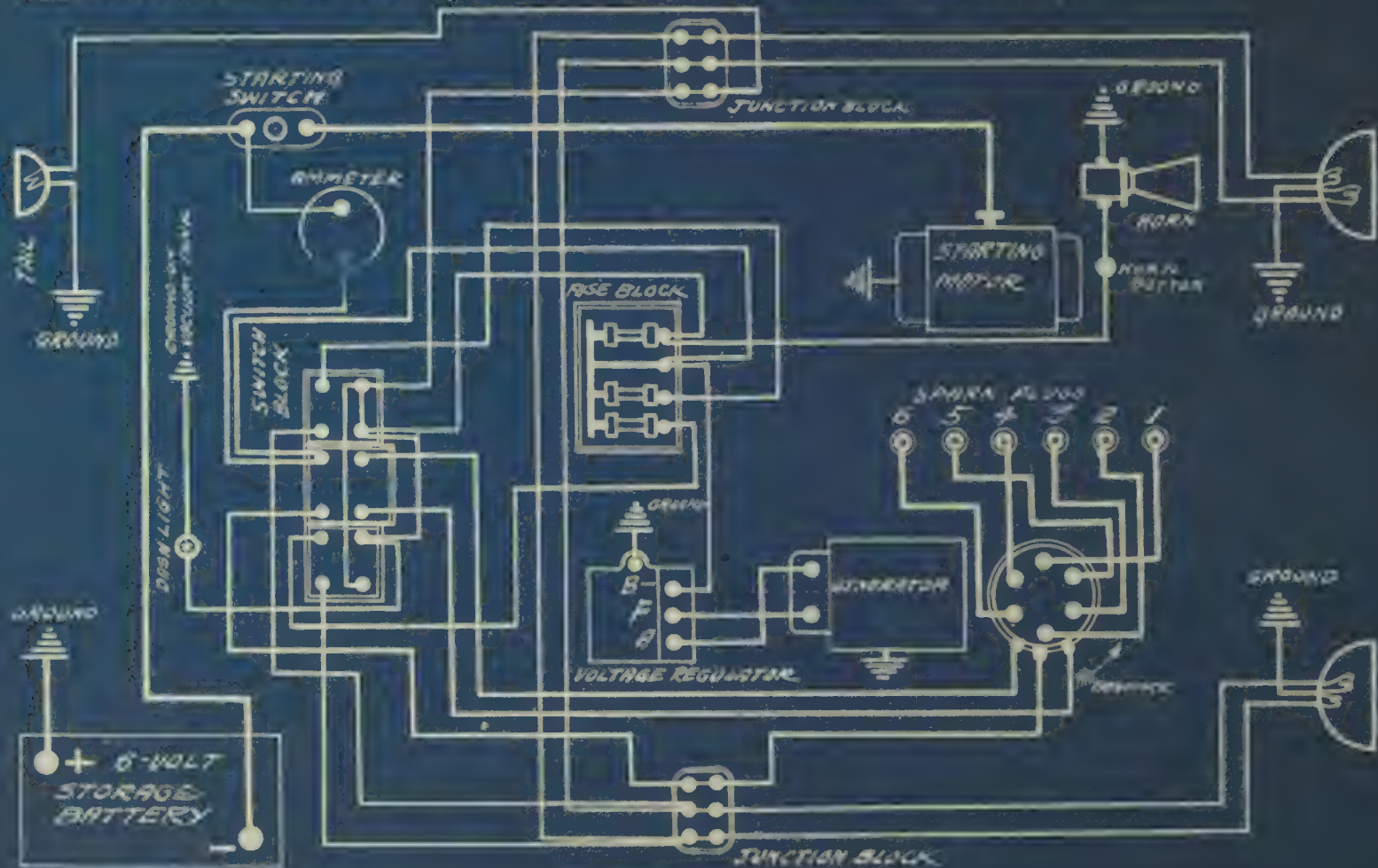




GLIDE 1916-1917  
WESTINGHOUSE SYSTEM

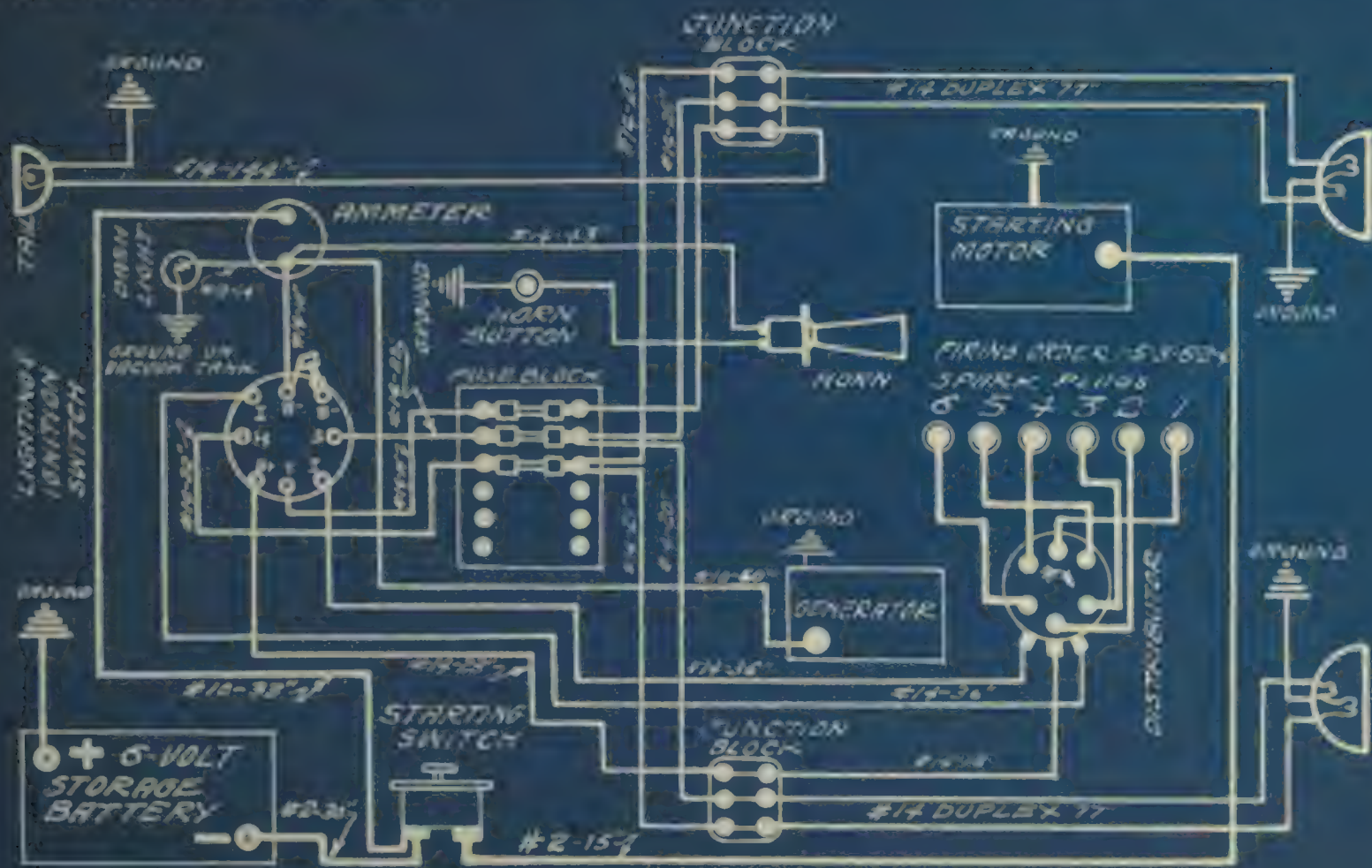
SIX-40  
(USED ON CARS FROM #9000-TO-#10255)

FROM MFRS BP 16-596



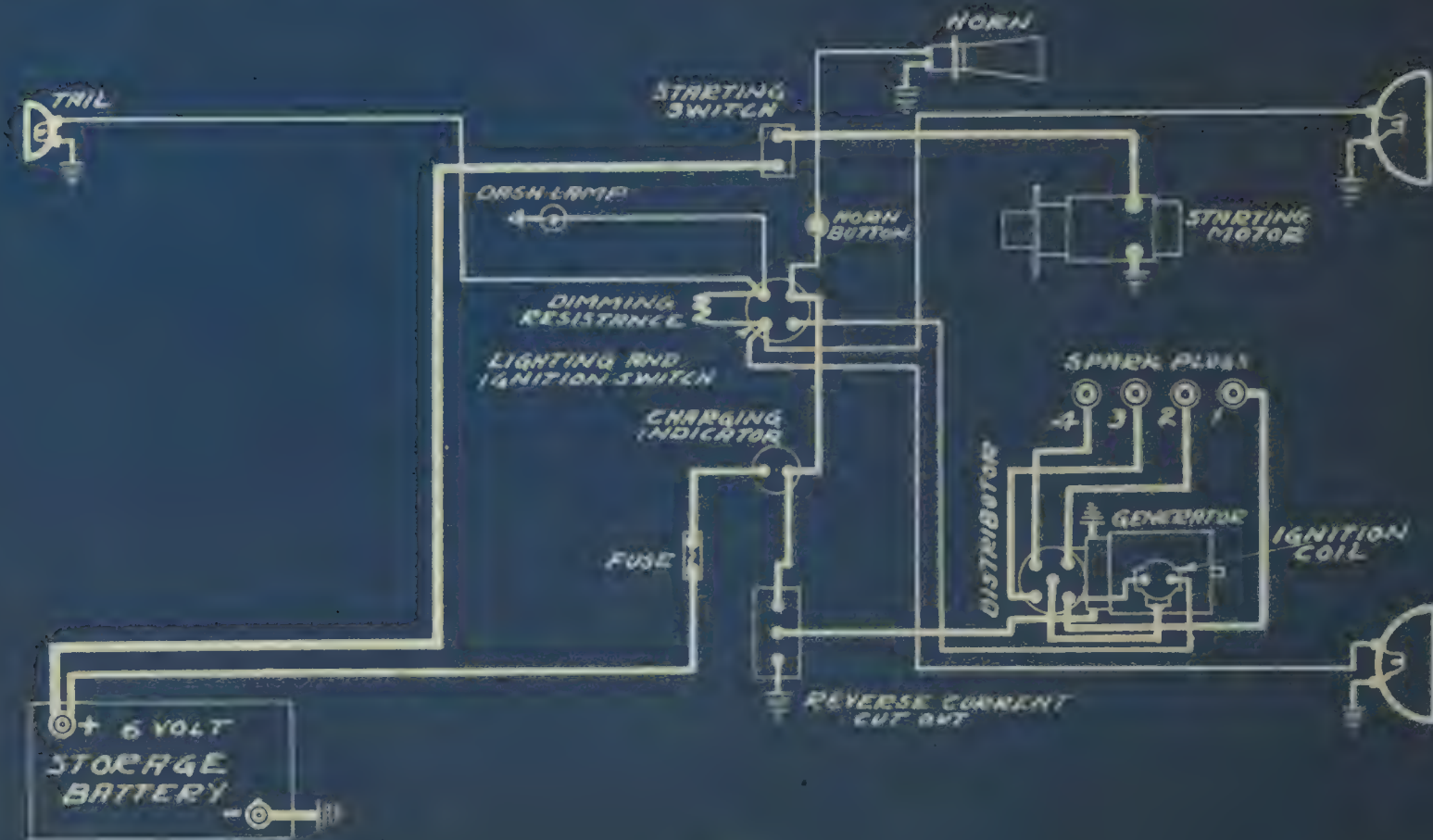
**SPECIAL ADVERTISING SECTION**

WASH MEES WP 8-090



# GRAMM-BERNSTEIN TRUCK NORTH EAST SYSTEM

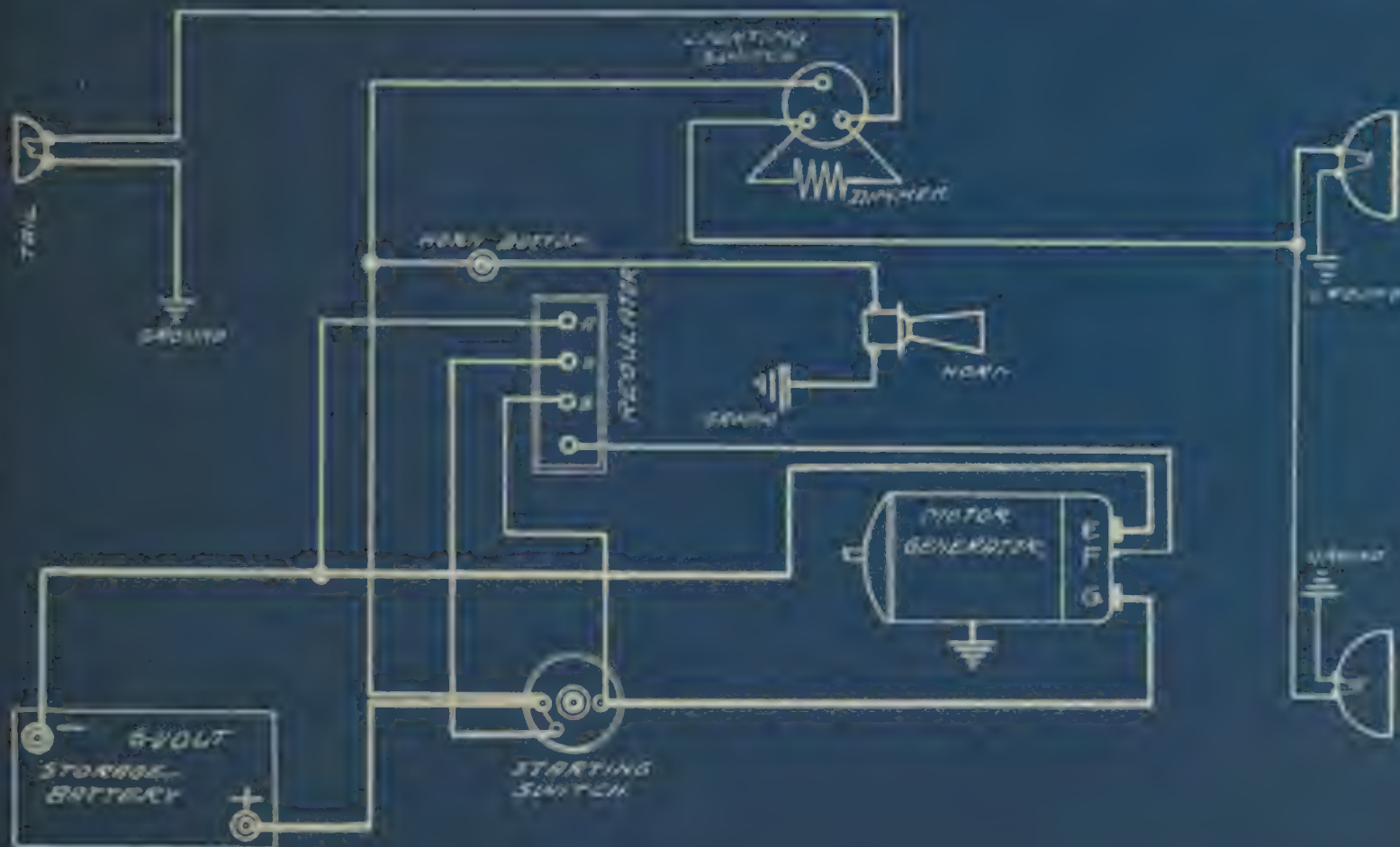
FROM FIG. 5, VOL. NO. 55





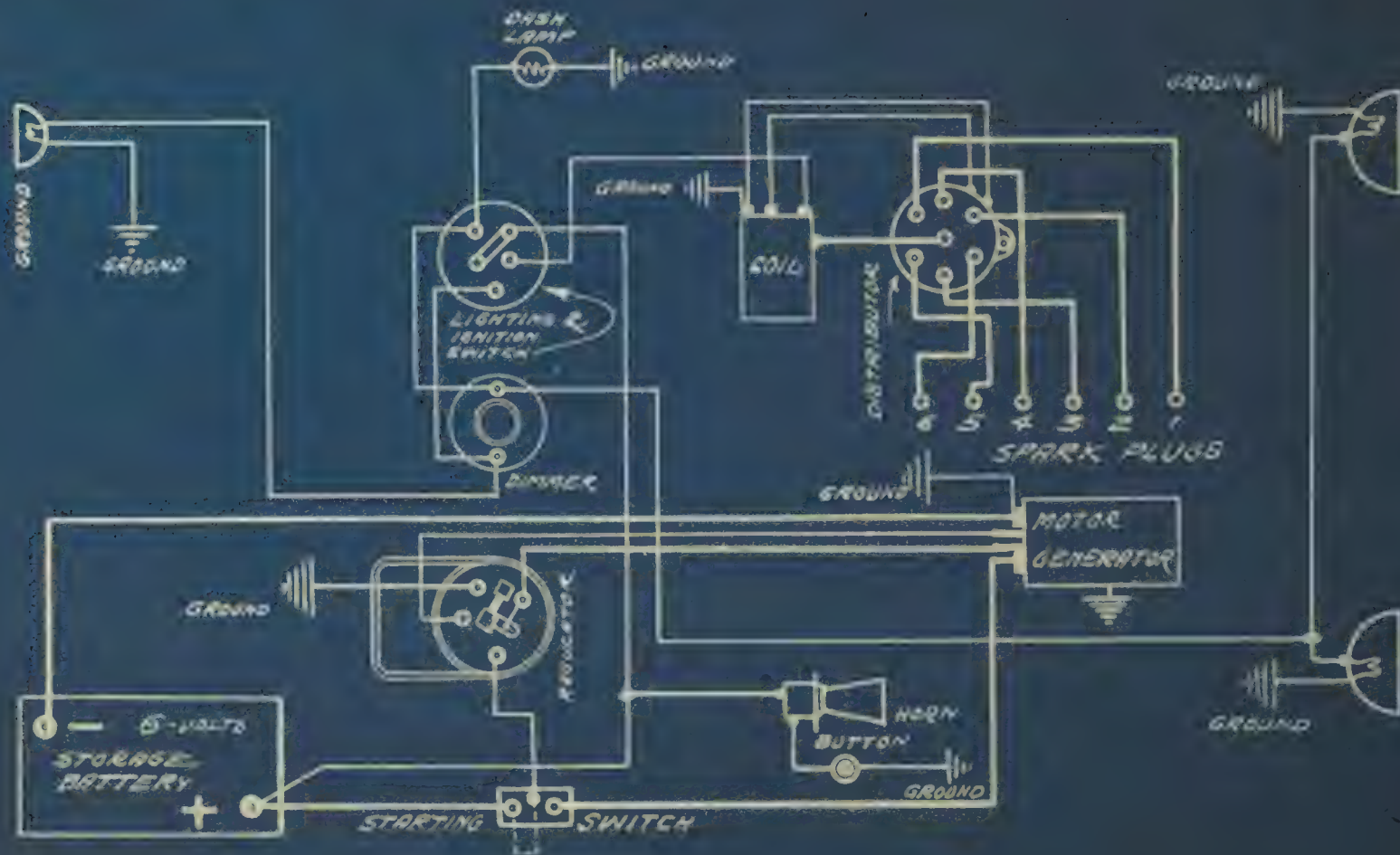
GRANT 1915-1916 "4"  
ALLIS-CHALMERS SYSTEM

FROM R-C BR SK10377

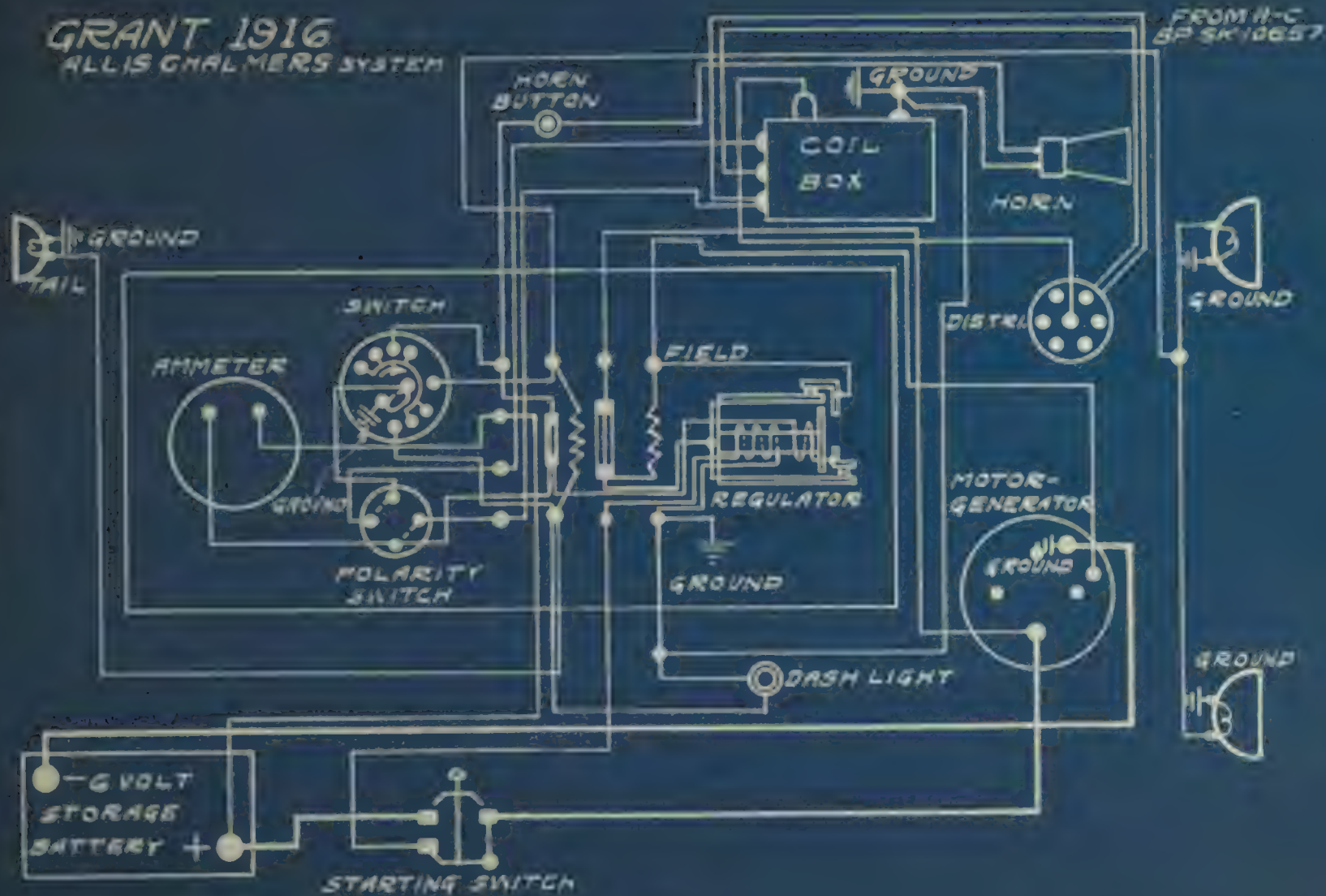


GRANT 1915-1916 "6"  
ALLIS-CHALMERS SYSTEM

FROM MERS. DP 7-T-26



# GRANT 1916 ALLIS CHALMERS SYSTEM

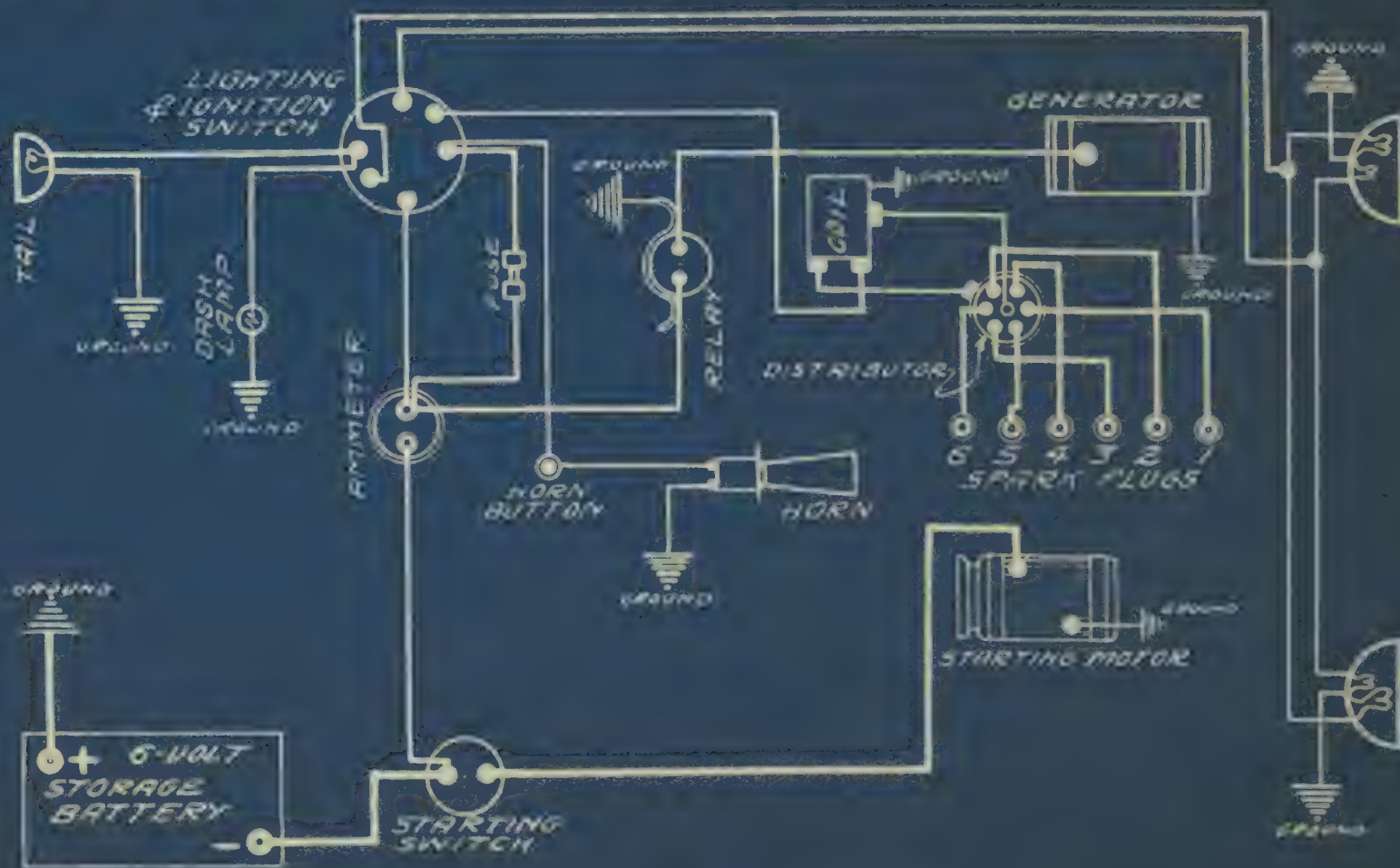




# GRANT 1916-17-18 "K"

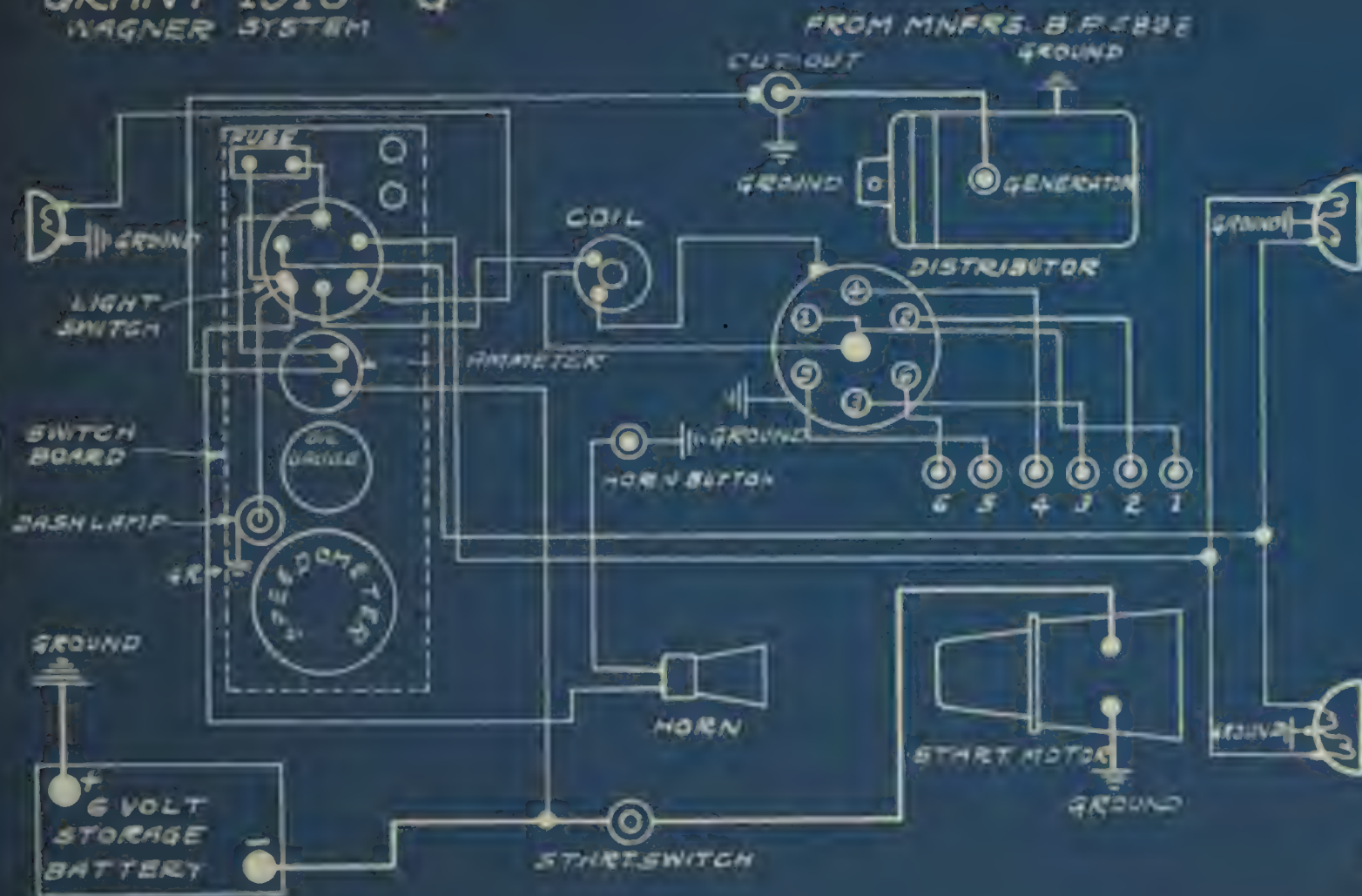
WAGNER SYSTEM WITH REMY IGNITION

FROM REMY MANUAL



AUTOMOTIVE PUBLISHING CO.  
PITTSBURGH, U.S.A.

# GRANT 1918 "G" WAGNER SYSTEM

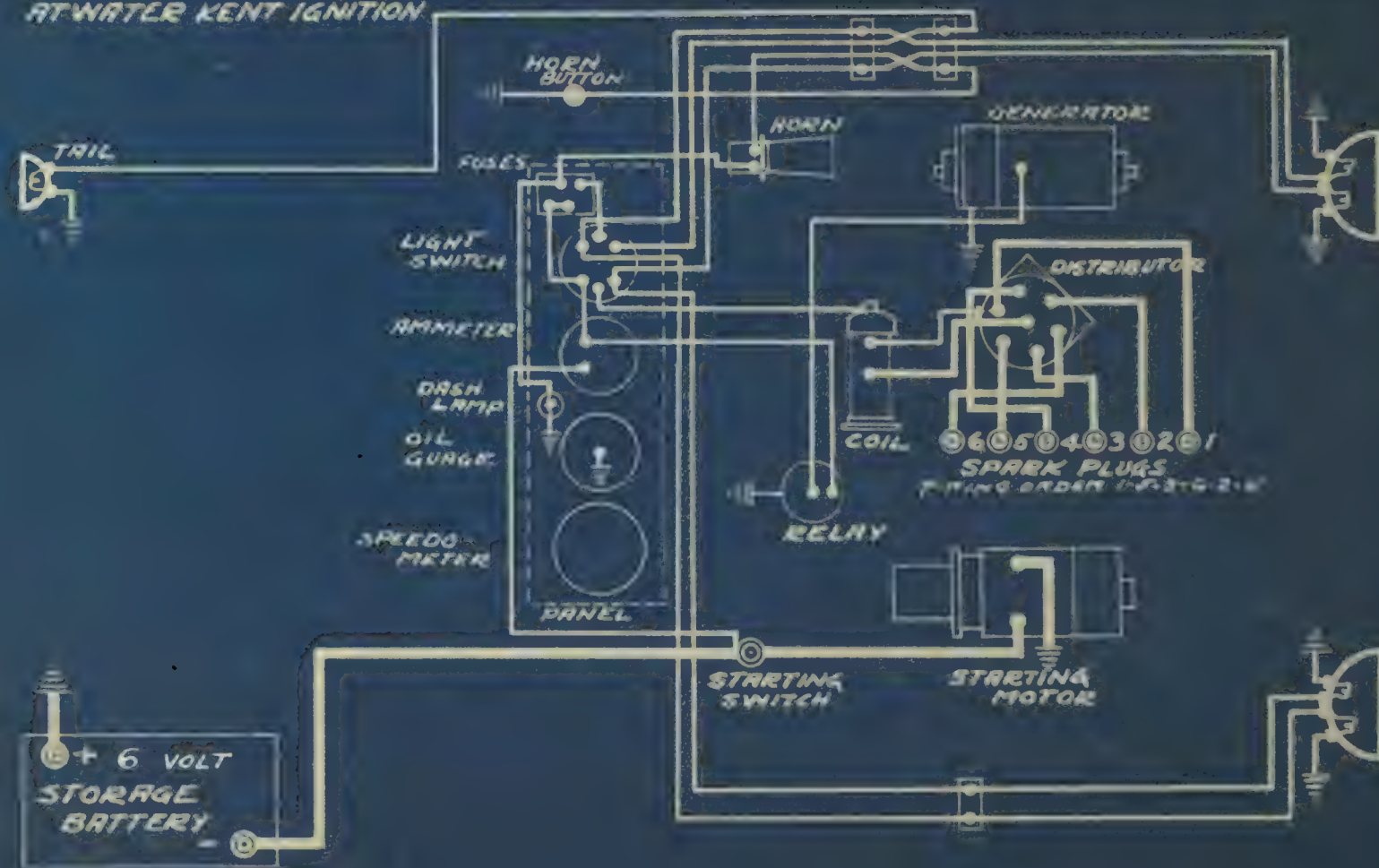


# GRANT MODEL H 1920

## WAGNER STARTING AND LIGHTING

### ATWATER KENT IGNITION

REO PAPER NO. 1091



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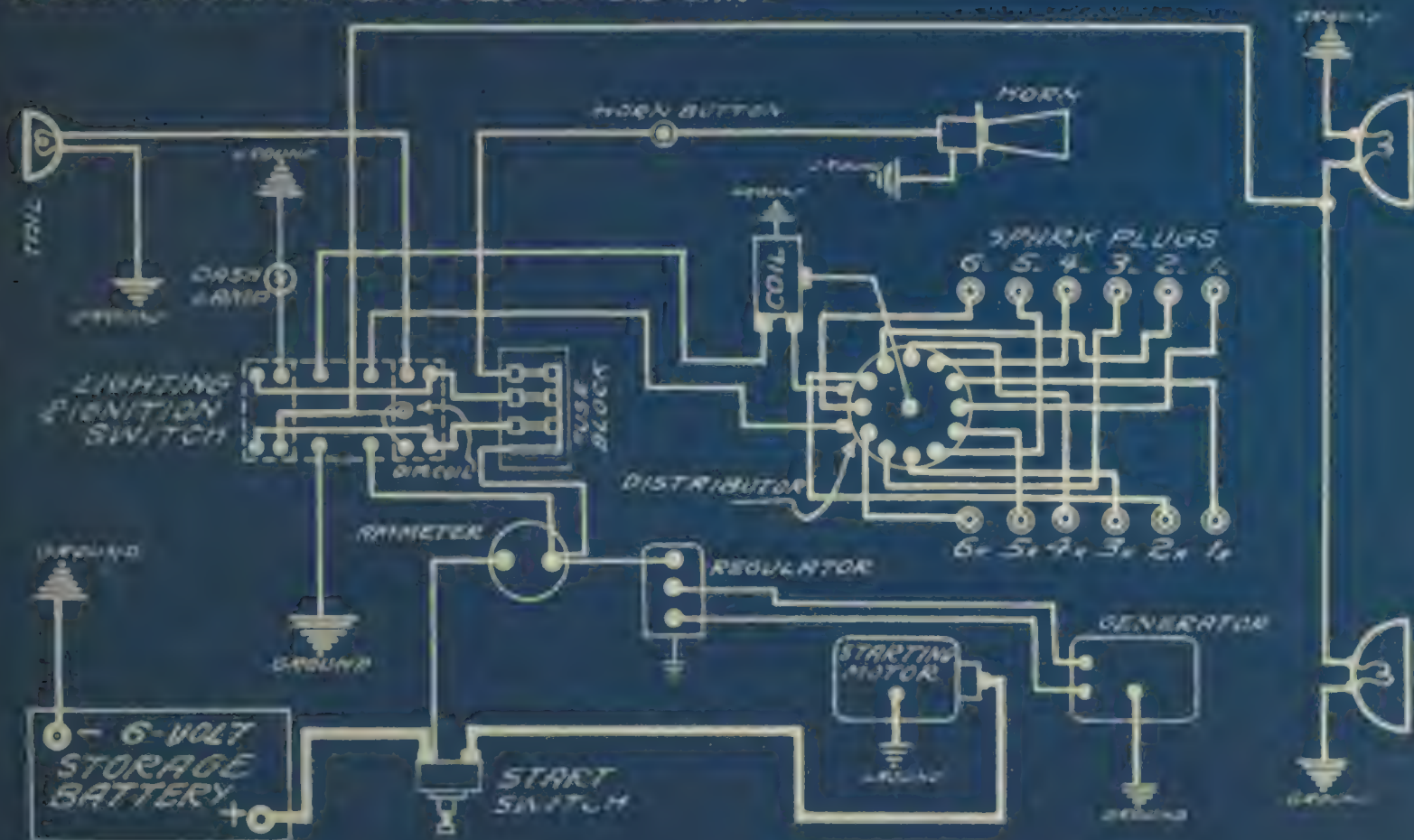
H.A.L. 1916-17-18 "12"

FROM Remy MANUAL

WESTINGHOUSE STARTING & LIGHTING SYSTEM

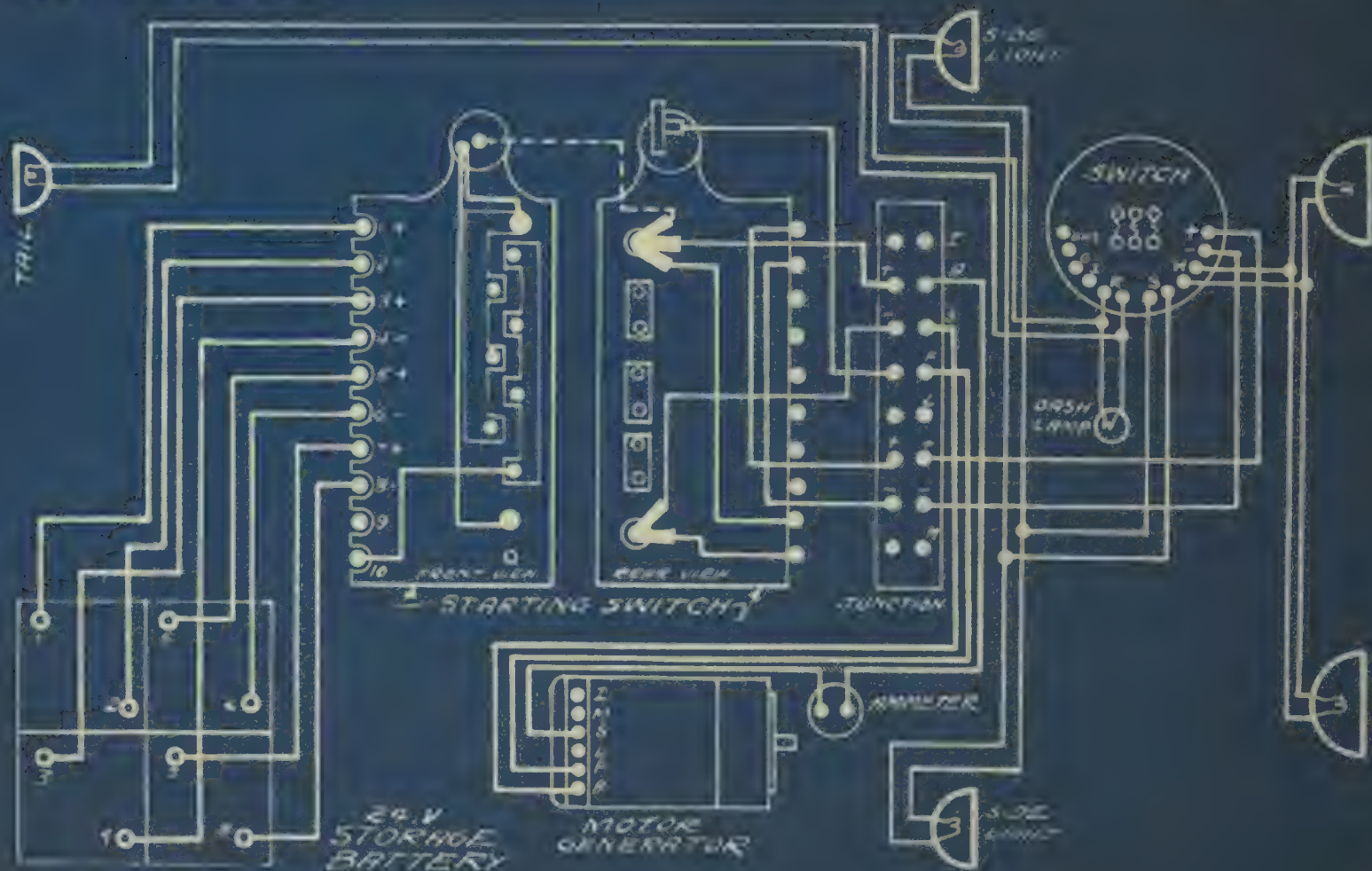
REMY IGNITION SYSTEM USED ON 1916-17 CARS

DELCO IGNITION SYSTEM USED ON 1918 CARS



# HALLADAY 1913-1914 "G" & "32" ELECTRO SYSTEM

FROM HALLADAY



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CHICAGO, ILL.

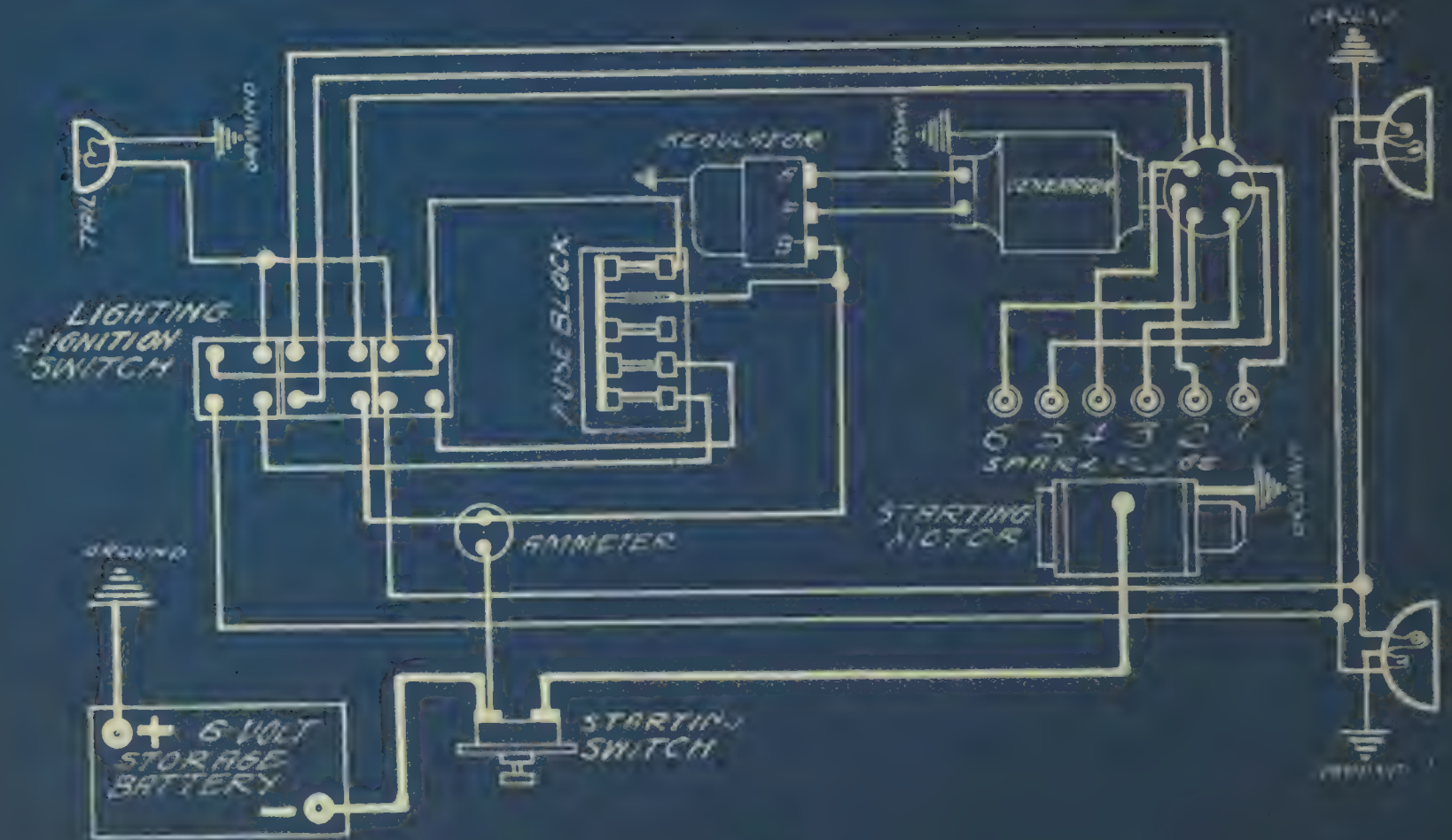




# HALLADAY 1916 "R"

WESTINGHOUSE SYSTEM

FROM MRS. B.F.E.

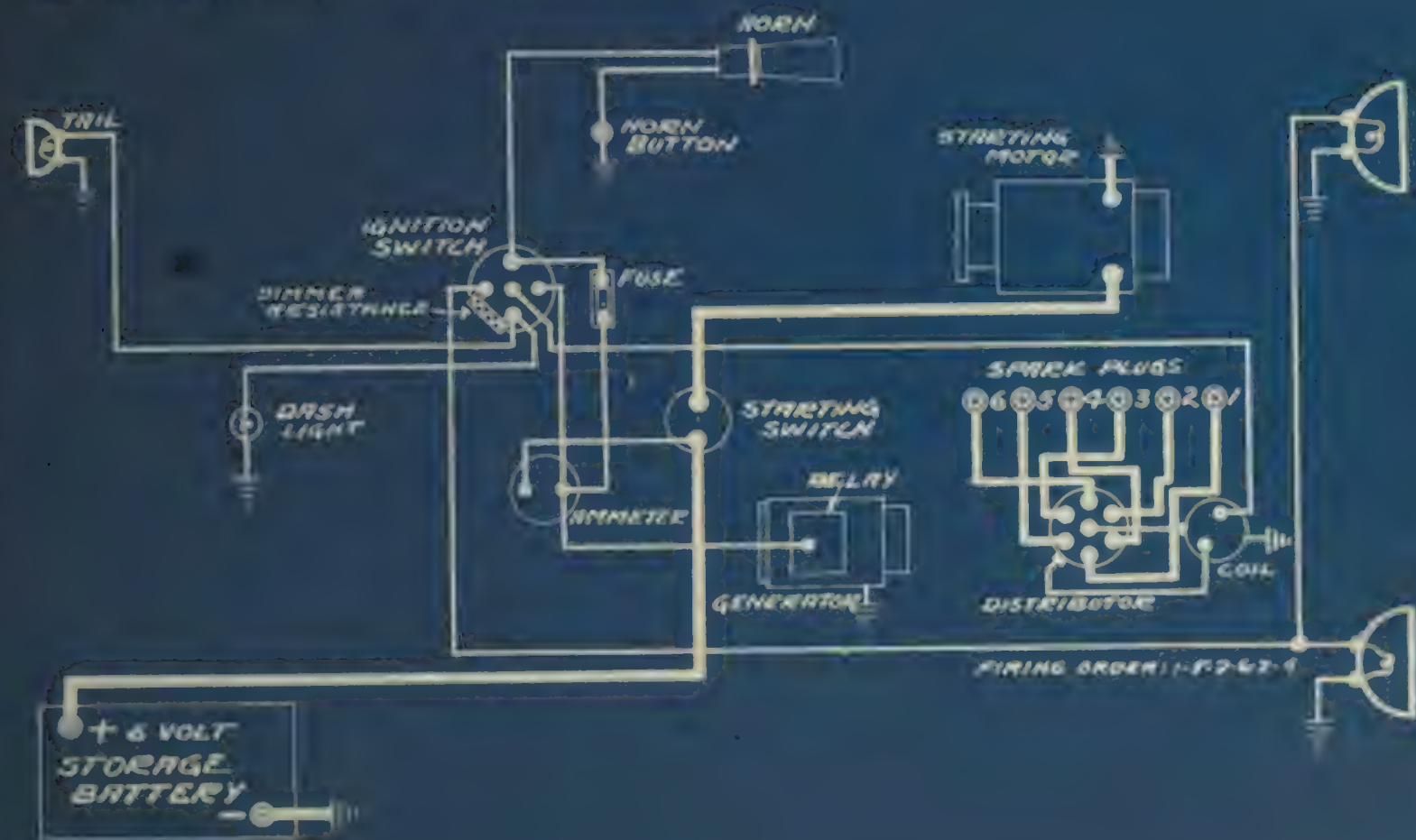


# HANSON SIX 1918-1919

## AUTO LITE STARTING AND LIGHTING

### REMY IGNITION

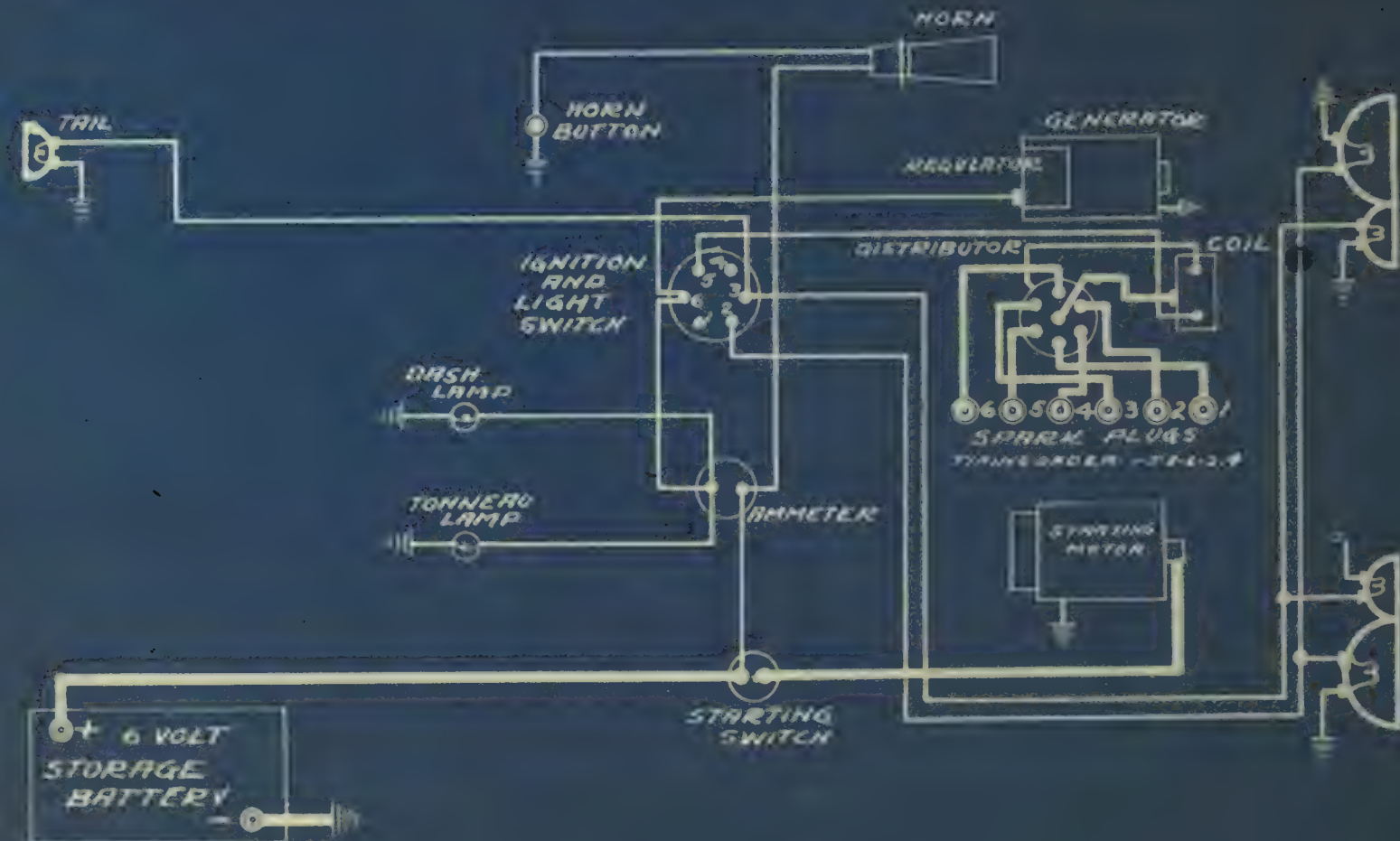
FORDY HARRIS, DRAFTER, 347-24



# HANSON SIX MODEL 54 1920

DELCO SYSTEM

FROM MP25, B. R. 12/19

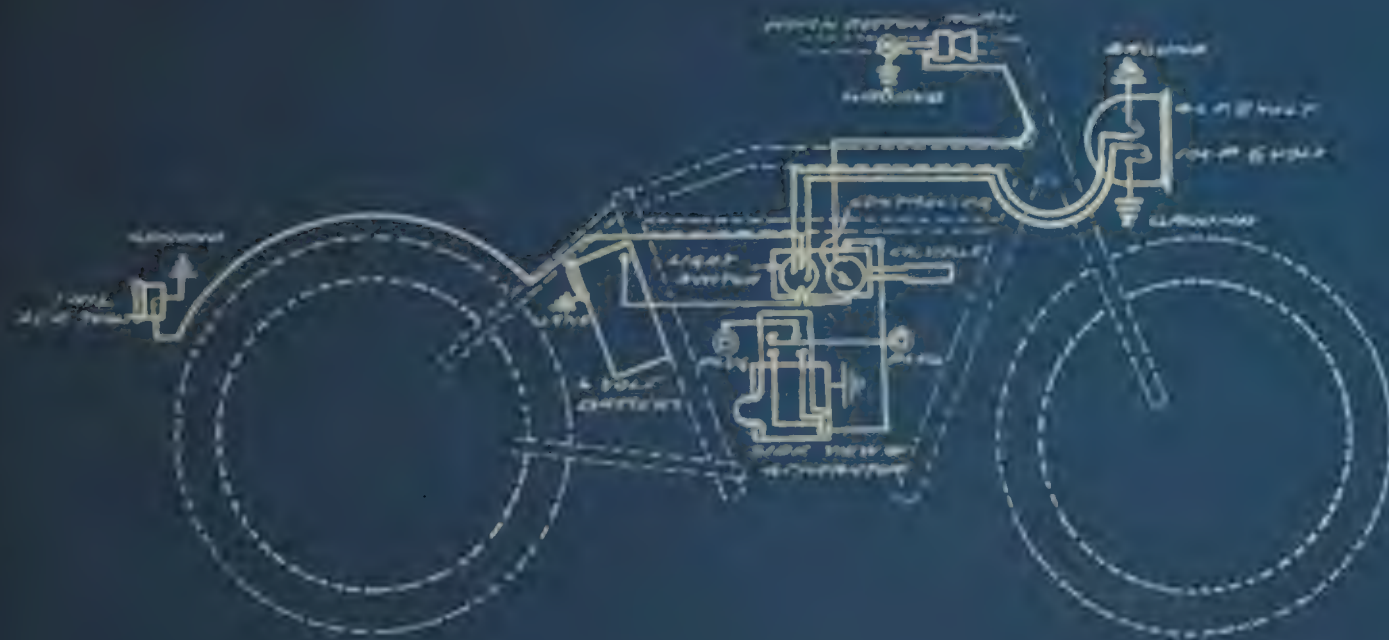


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AUTOMOTIVE ELECTRICAL CO.  
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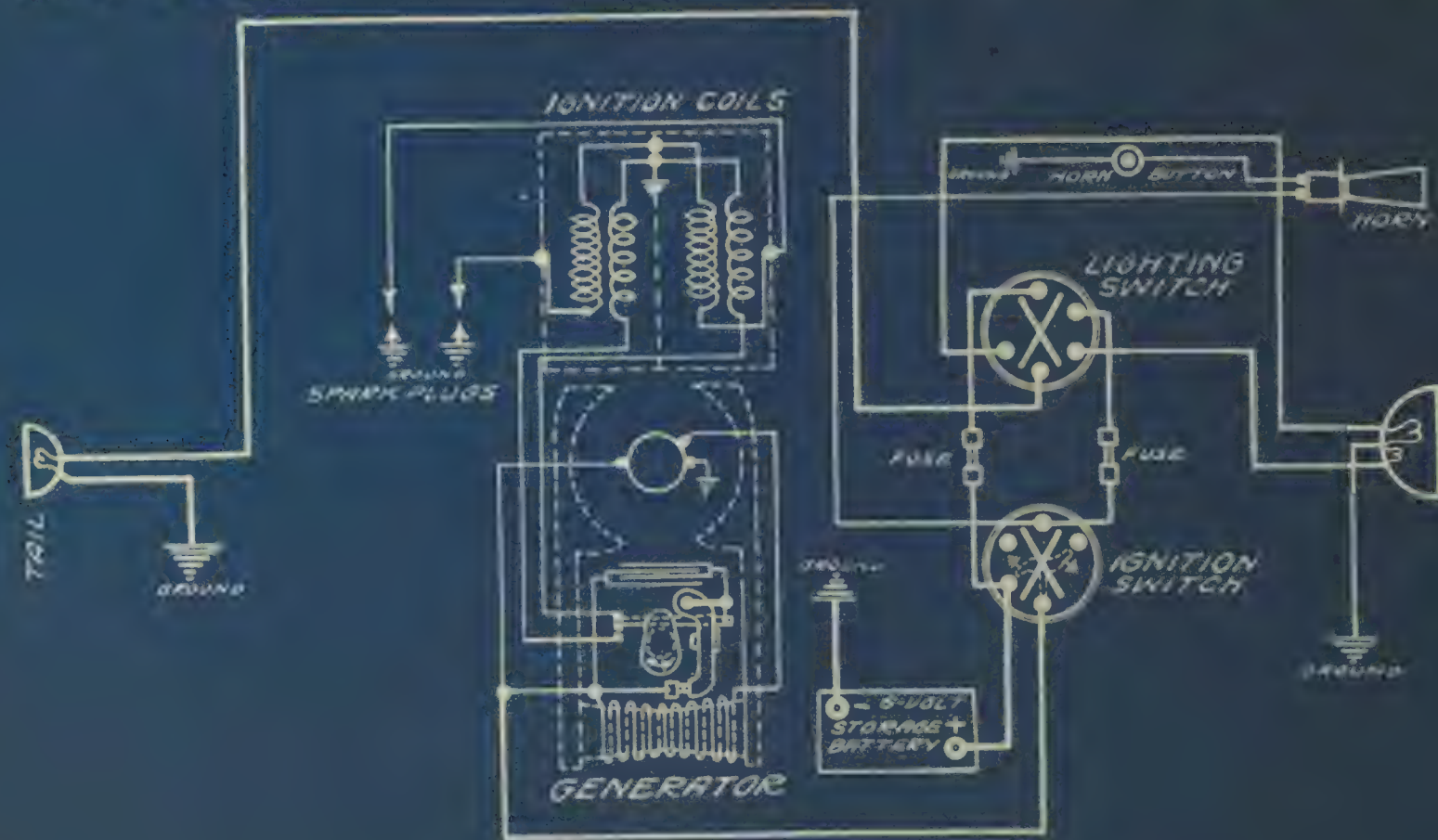


HARLEY DAVIDSON MOTORCYCLE 1915  
ARMY SYSTEM

### SHORT-TERM DIAGNOSIS



# HARLEY DAVIDSON MOTORCYCLE 1916-17 FROM REMY MANUAL REMY SYSTEM

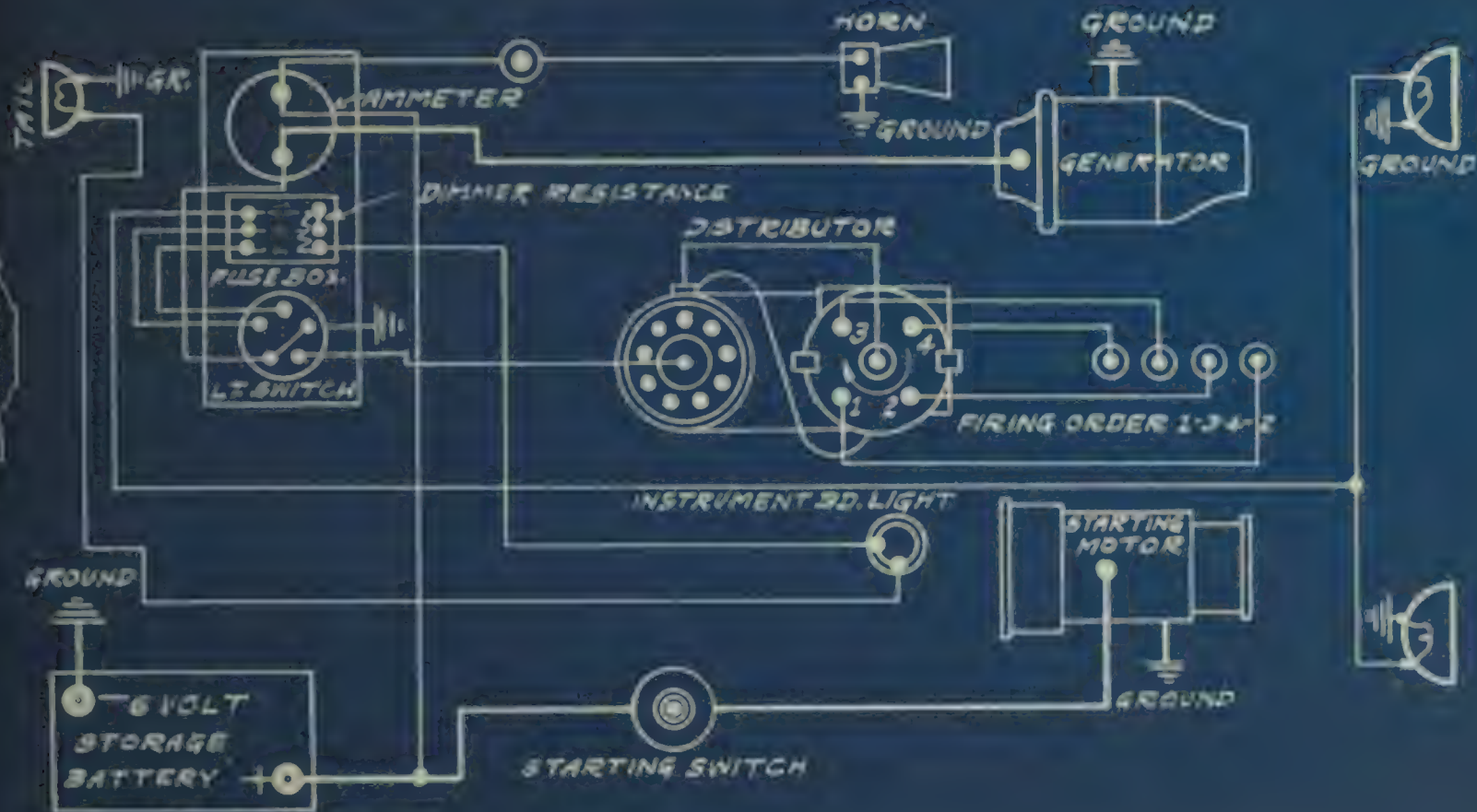


# HARROUN 1917-18-19 "AA1"

REMY SYSTEM  
ATWATER KENT IGNITION

FROM MNFRS. B.P. 128-A

Automotive Publications Co. Chicago, Ill.

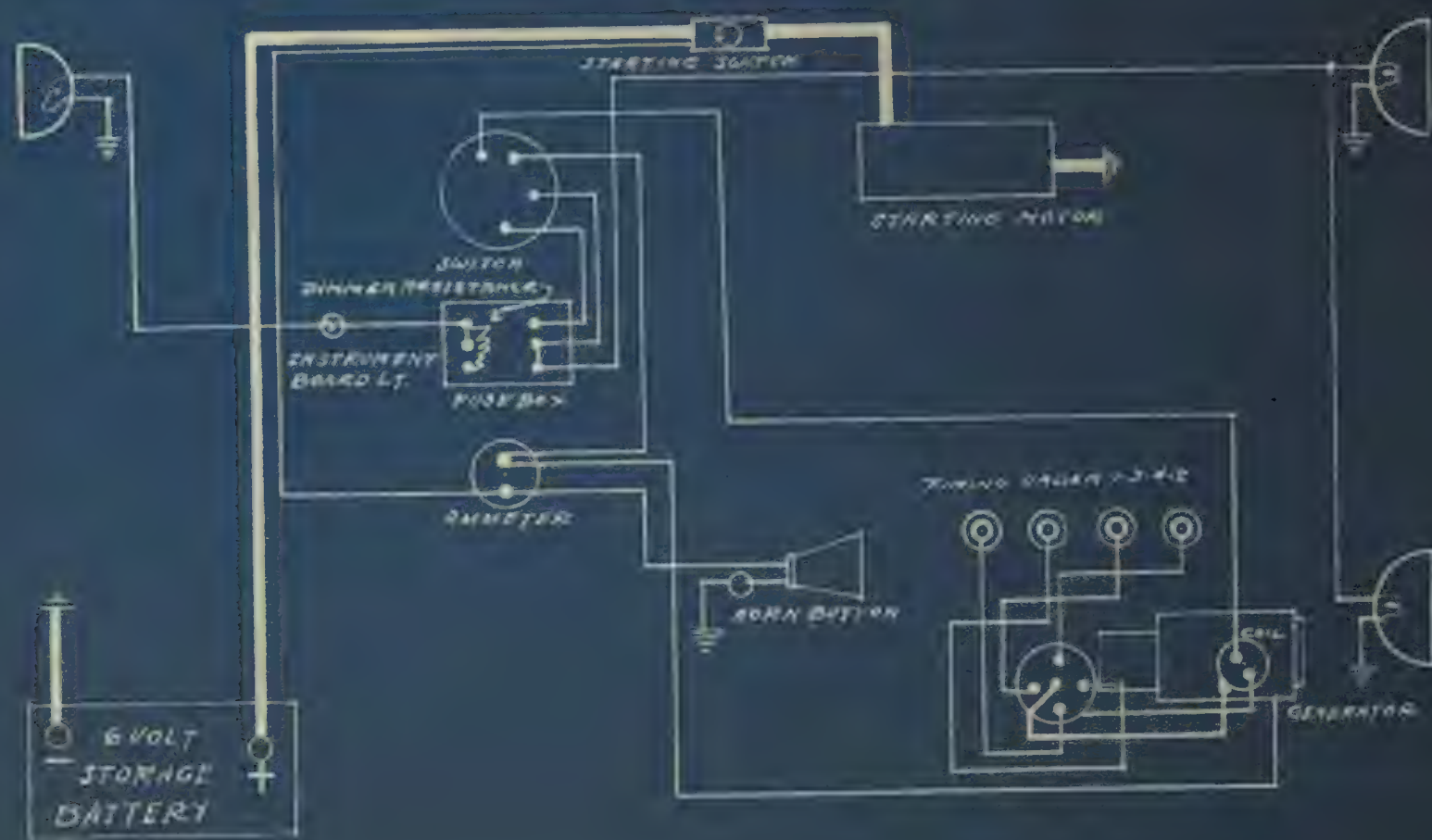




HARROUN 1920  
REMY SYSTEM

MOD. A.A.2.

FROM HARROUN 1920 BOOK

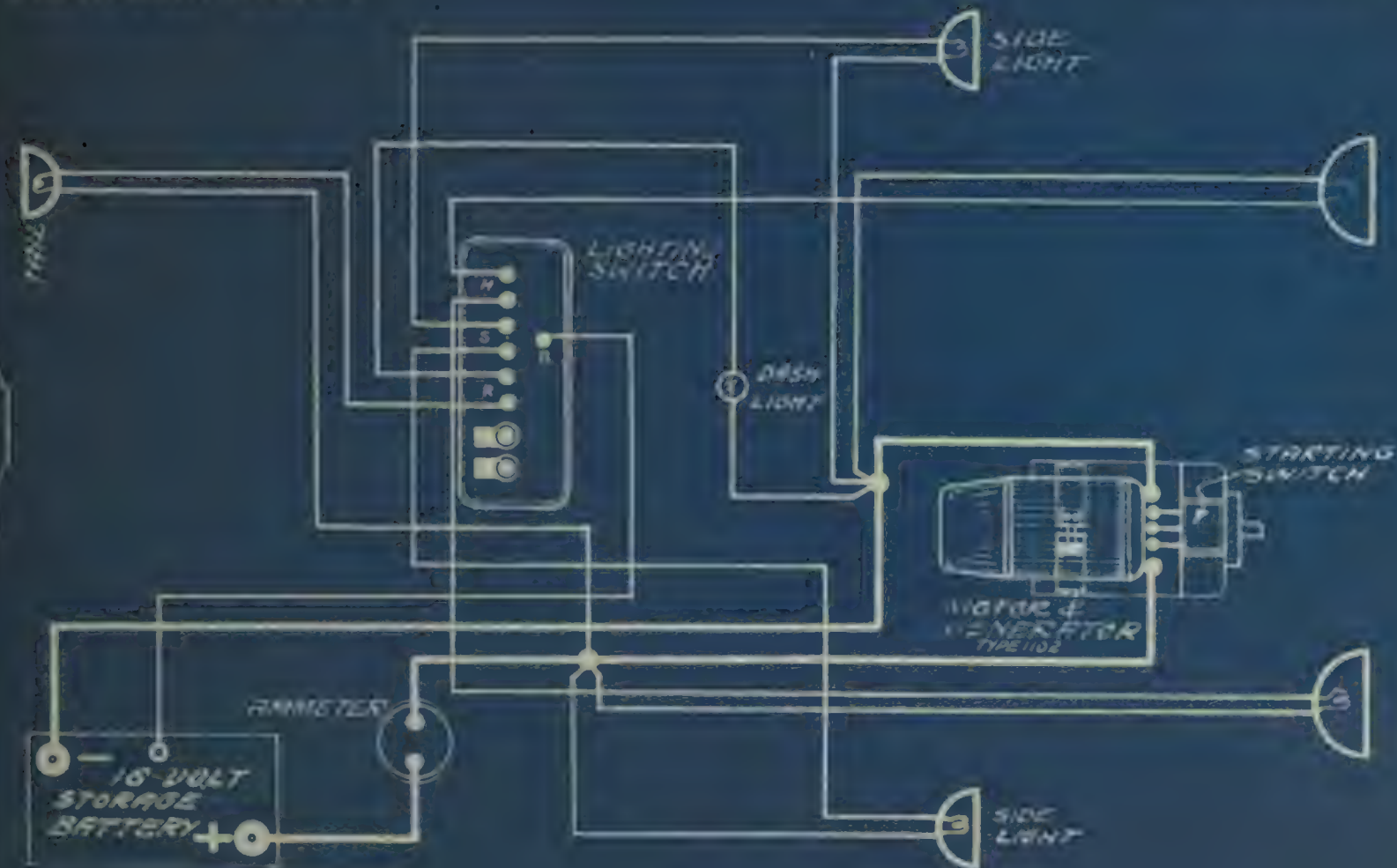


AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL.

# HAVERS 1914 NORTH-EAST SYSTEM

FROM A & PLATE 2, 3, C

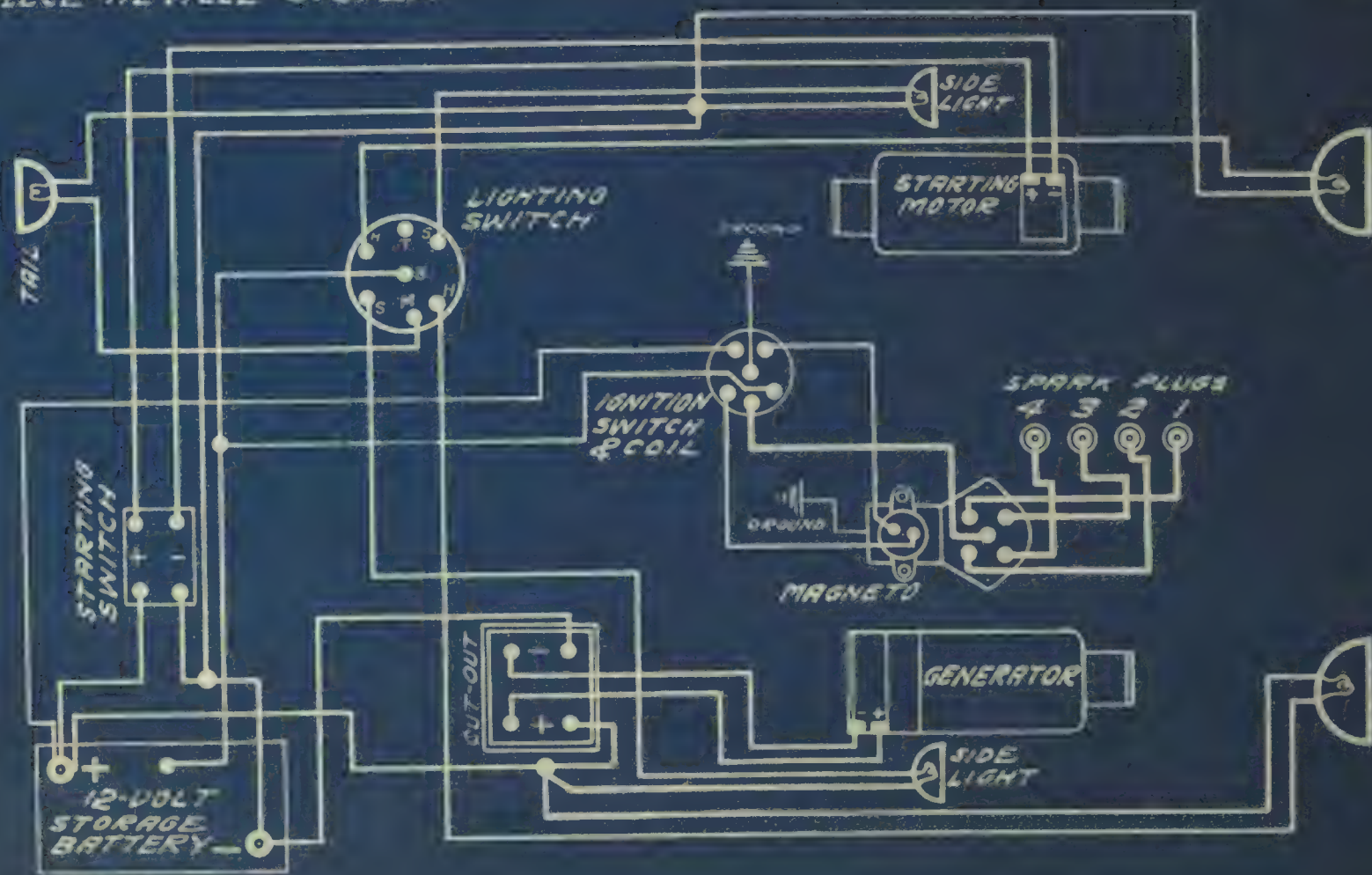
AUTOMOTIVE PUBLISHERS CO.



# HAYNES 1913 "24"

LEECE-NEVILLE SYSTEM

FROM MFRS. BR 11-24-SK-621



Continued on page 21  
 AUTOMOTIVE PUBLISHING CO.  
 CHICAGO, ILL. U.S.A.

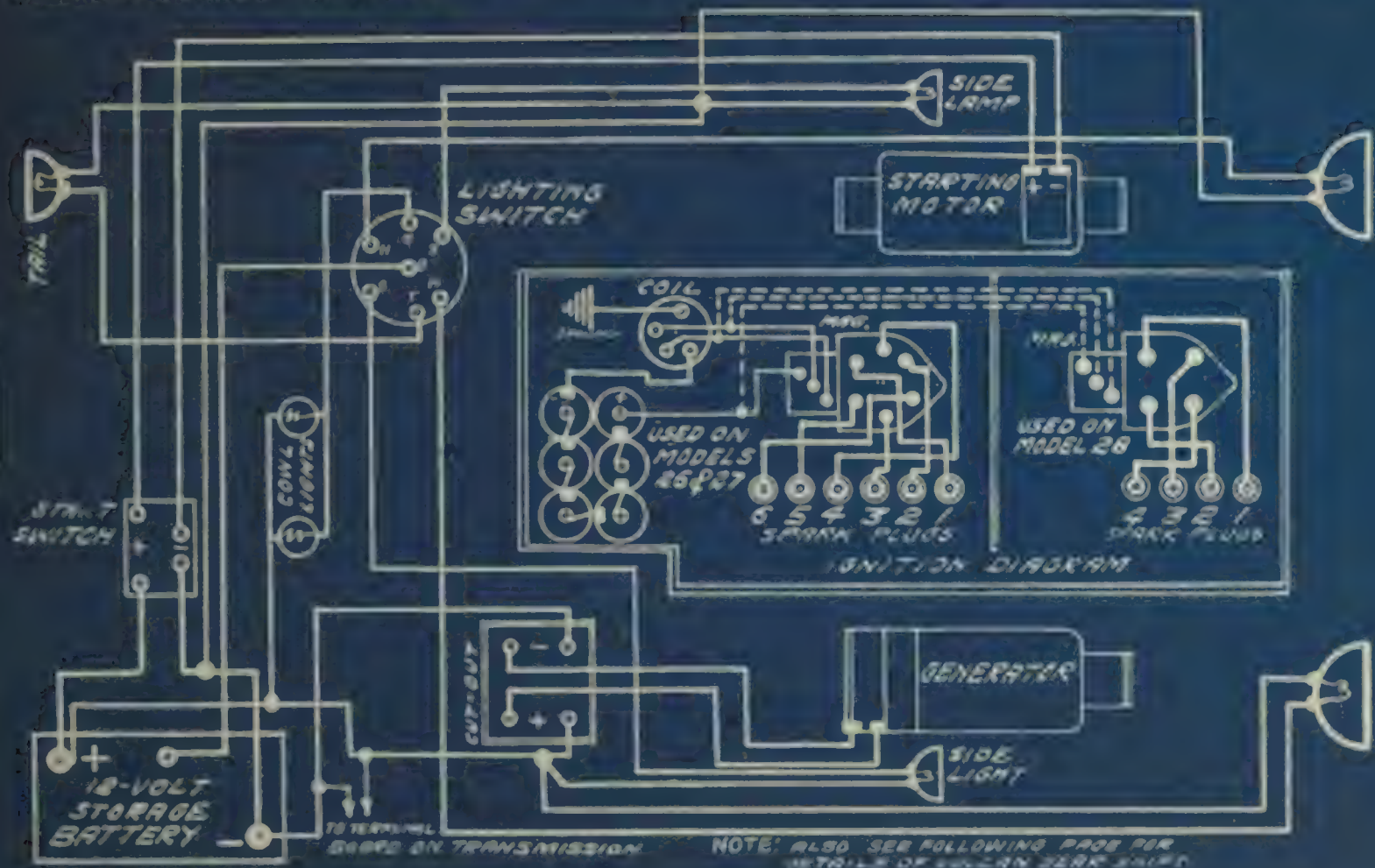


# HAYNES 1914 26-27-28

## LEECE-NEVILLE SYSTEM

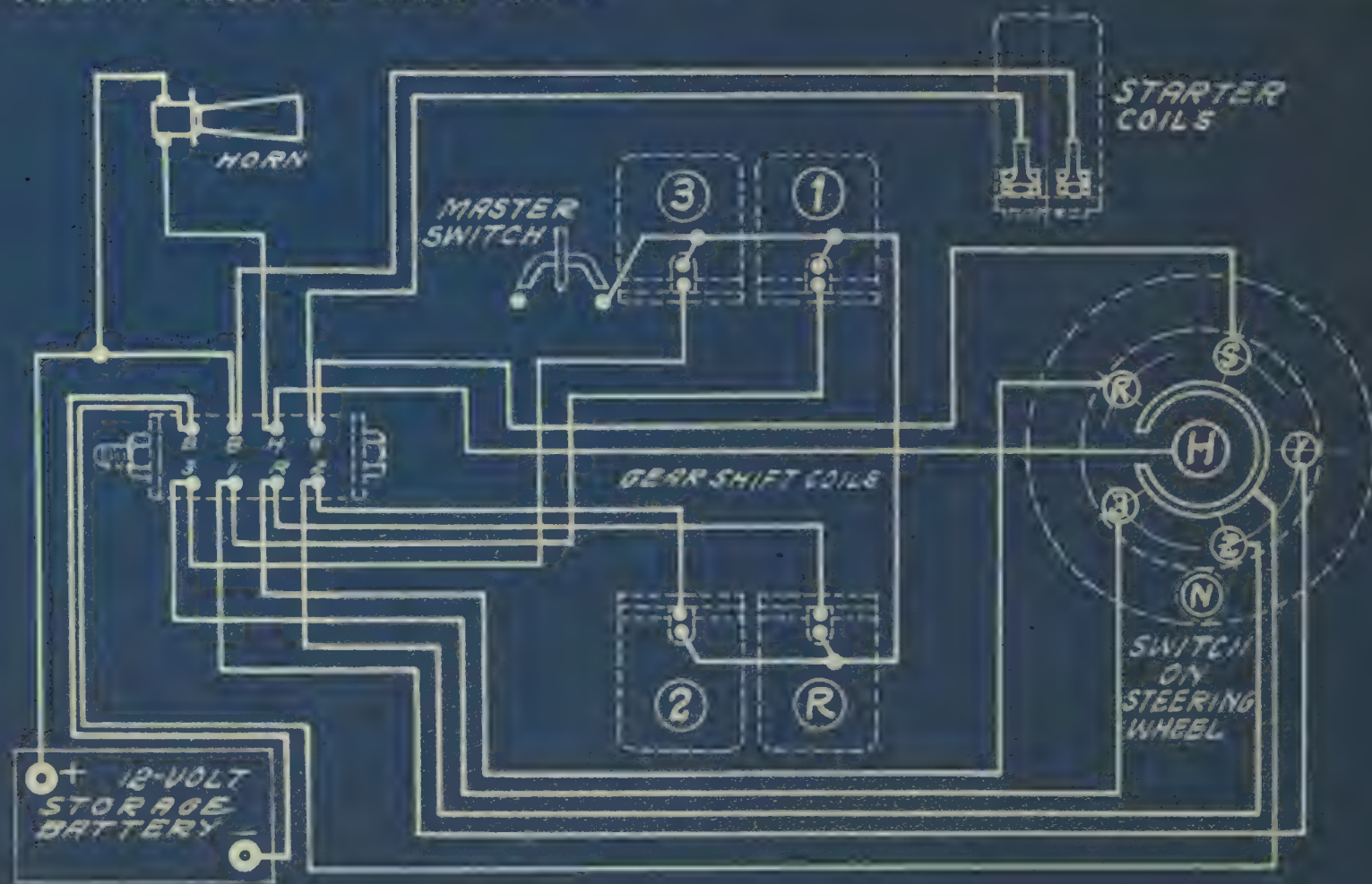
FROM HAYES BR 55574-5

Automotive Publishing Co.  
Copyright © 1914



**HAYNES 1914 26-27-28**  
**VULCAN ELECTRIC GEAR SHIFT**

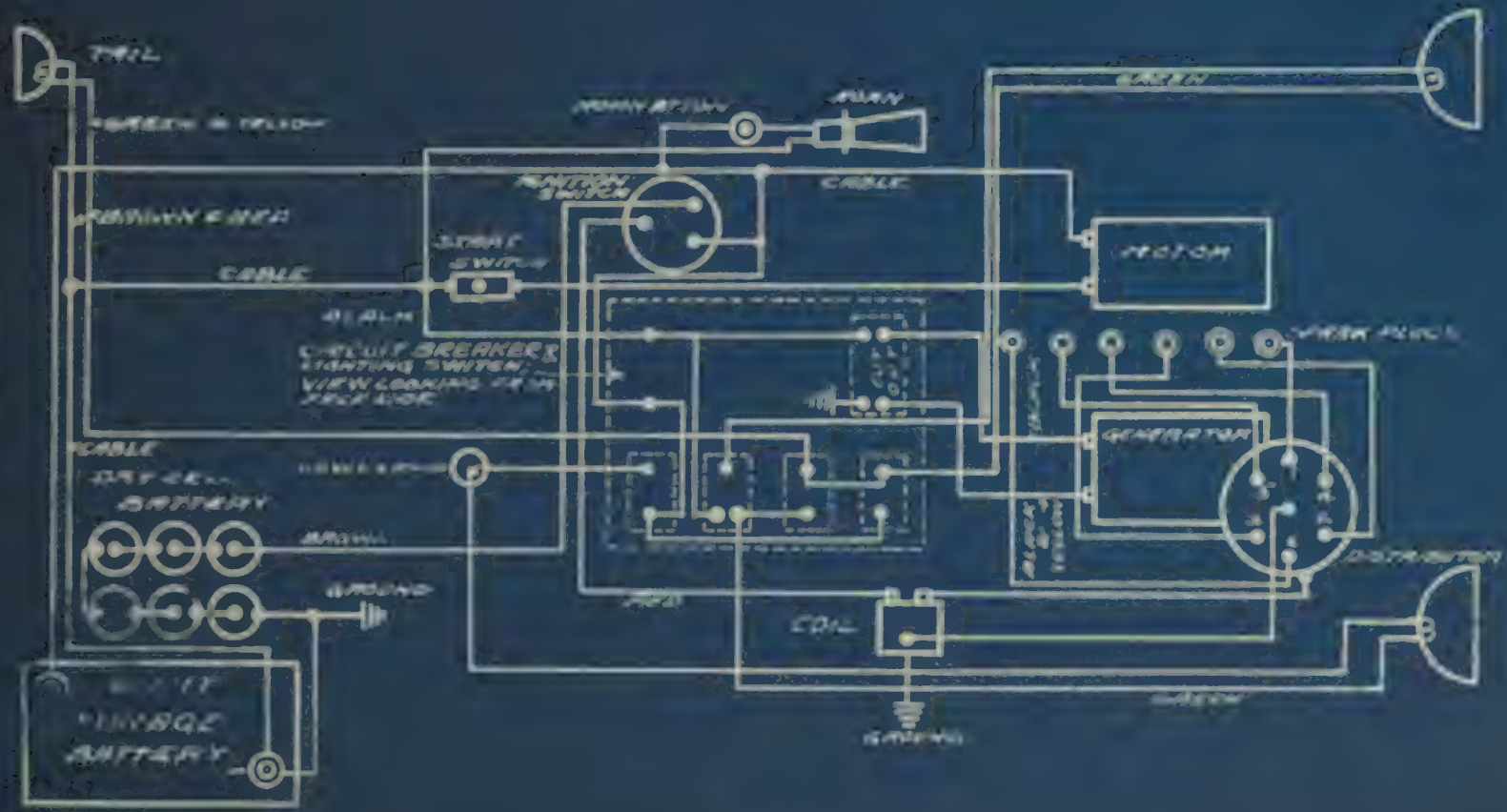
FROM MFRS. BP 5557



# 

FROM HARVEY ALLEN BROS.

Automotive Publishing Co.  
New York, N. Y.

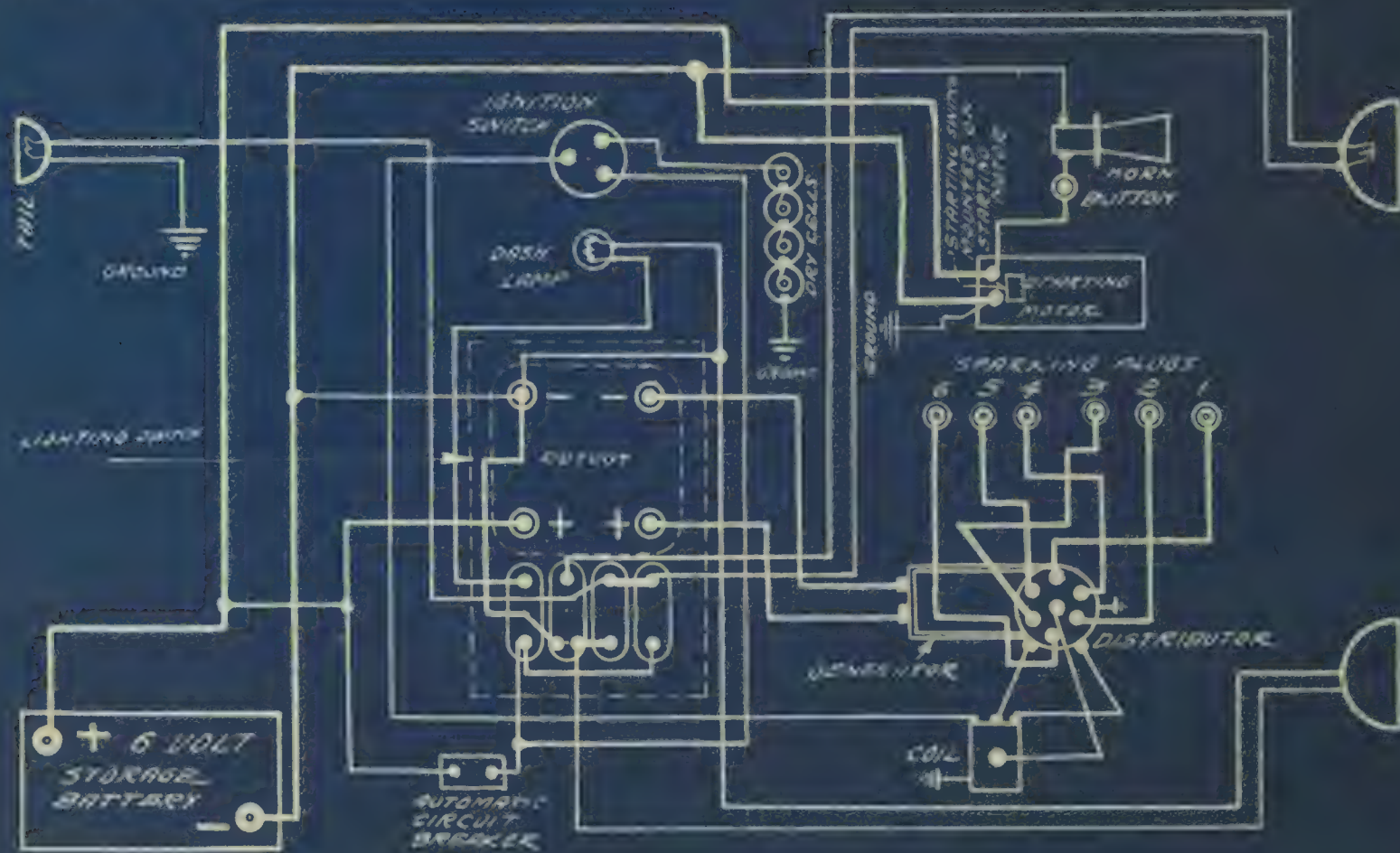




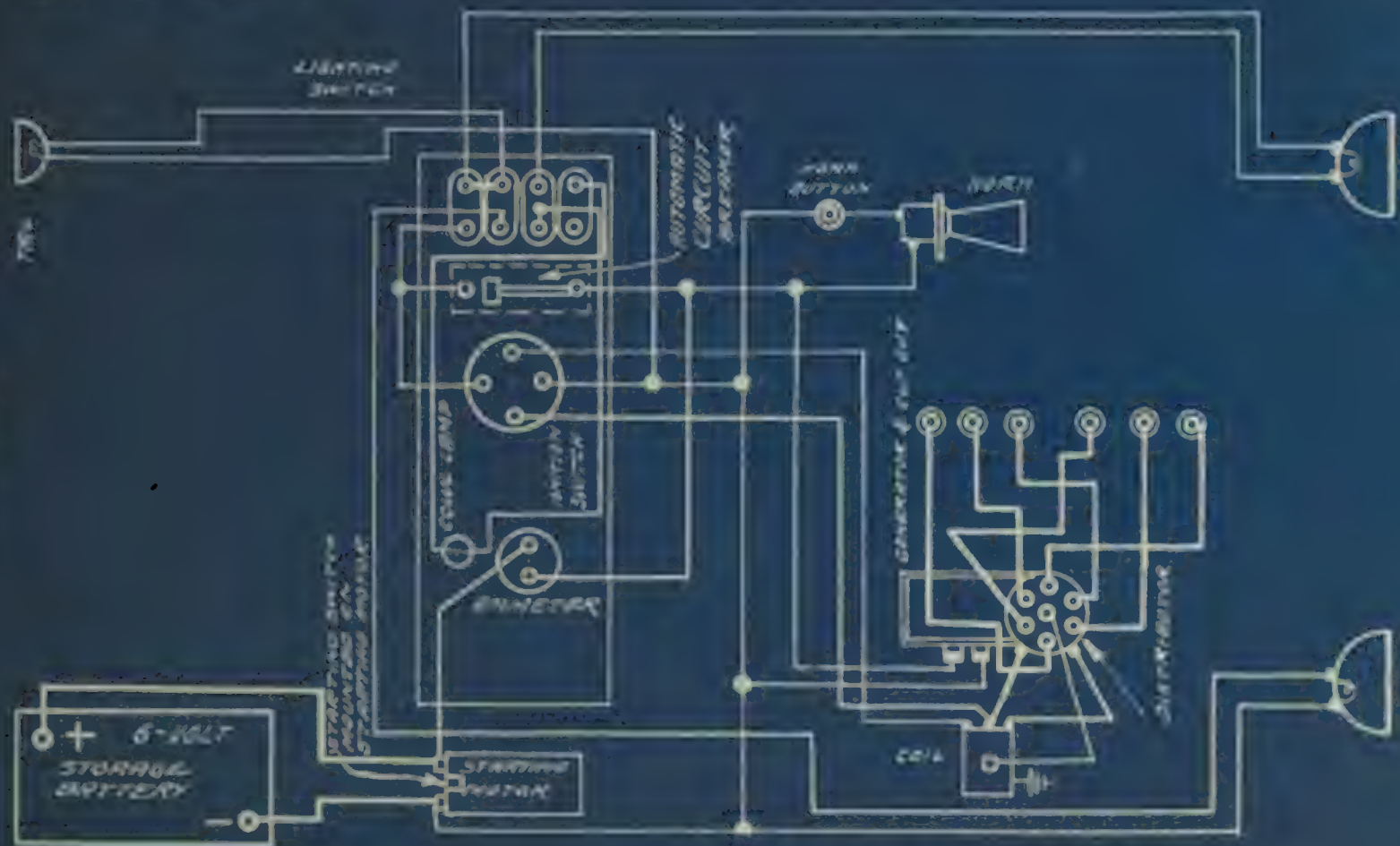
# HAYNES 1916 34 & 35

LEECE-NEVILLE SYSTEM  
REMY IGNITION

FROM MAKE BR 11134



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Chicago, U. S. A.



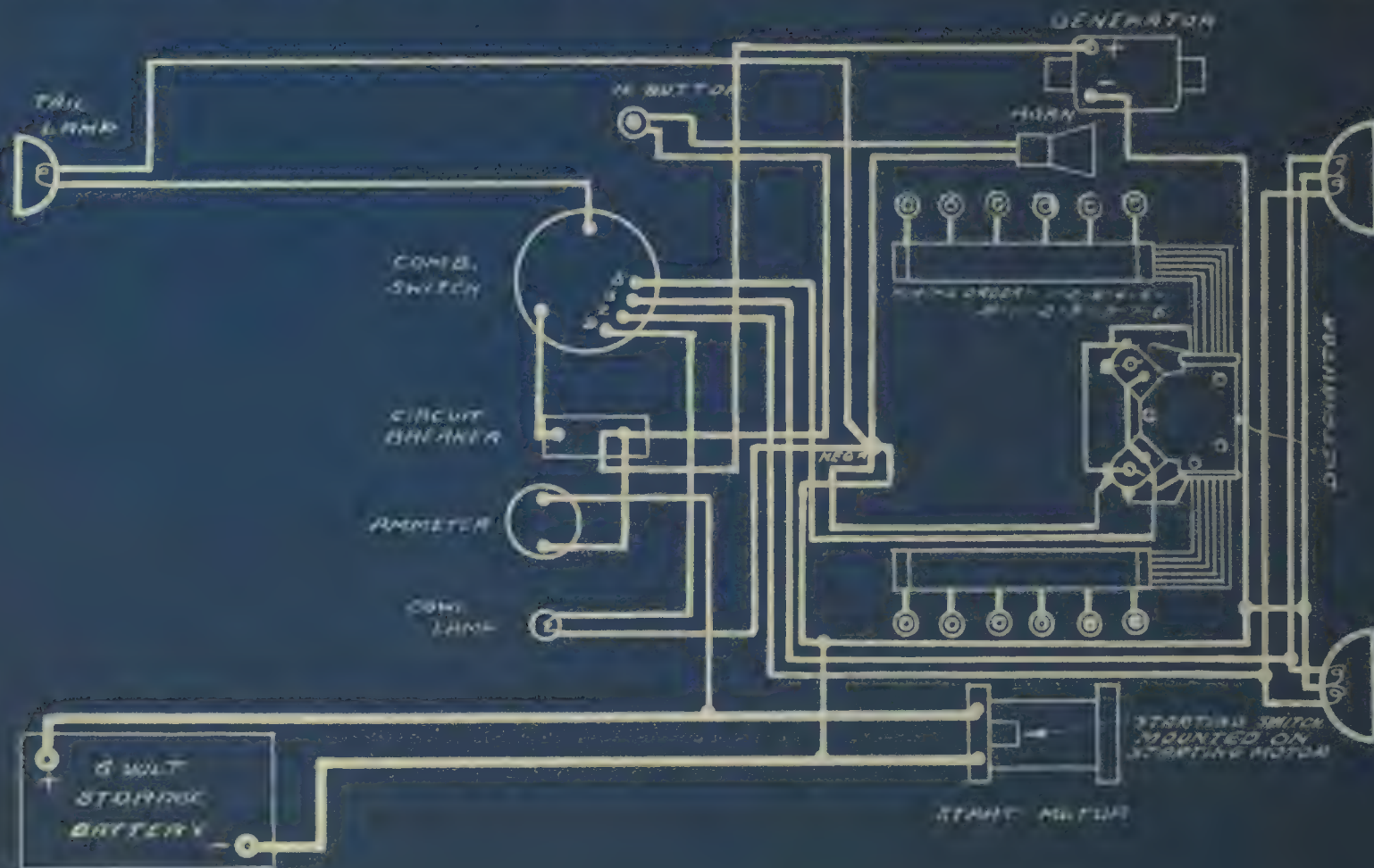
# HAYNES 12 MODELS 40-40R-41

1917-1918-1919

LEEDSVILLE SYSTEM

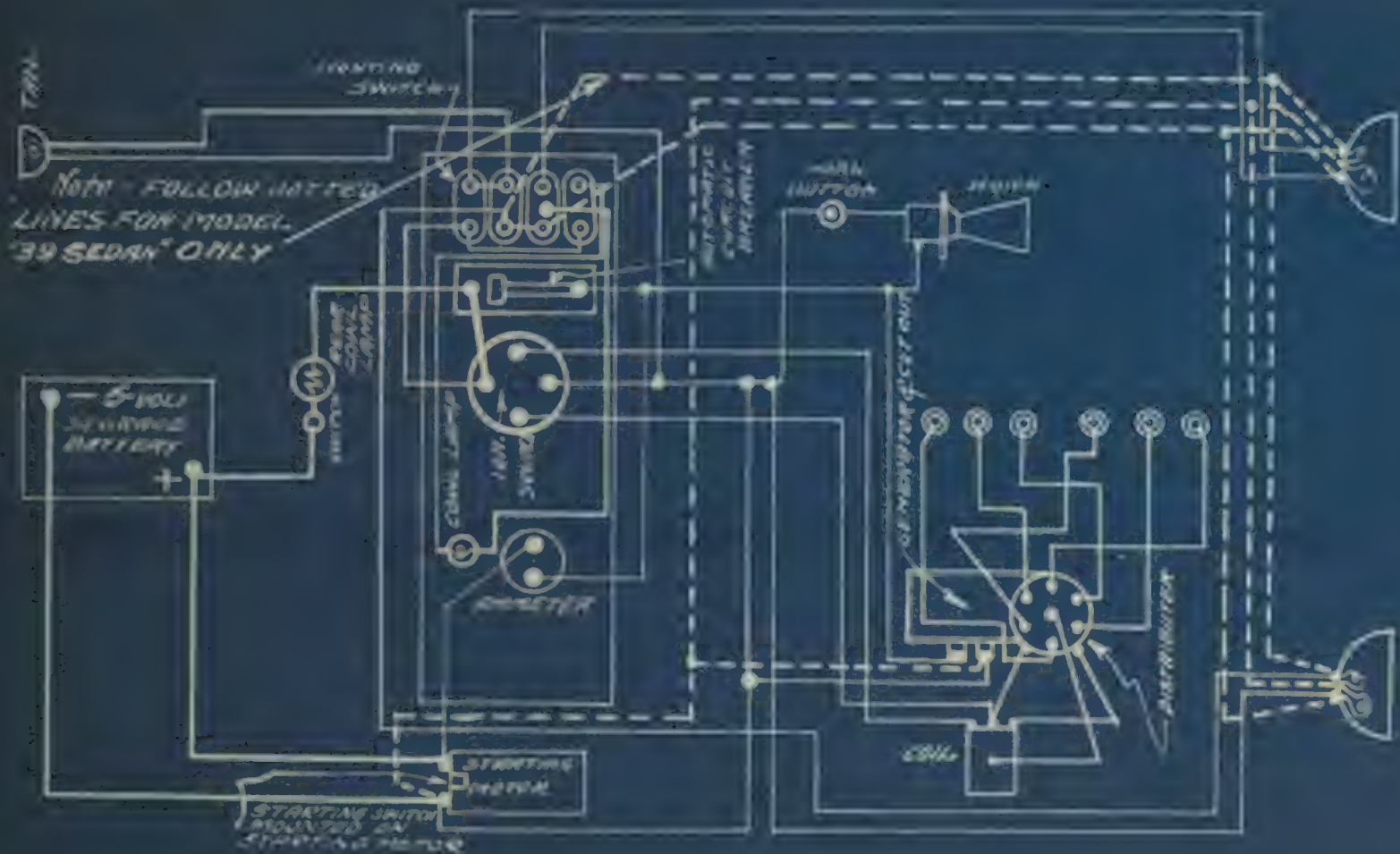
REPLY IGNITION

TRIM MODEL 40-41



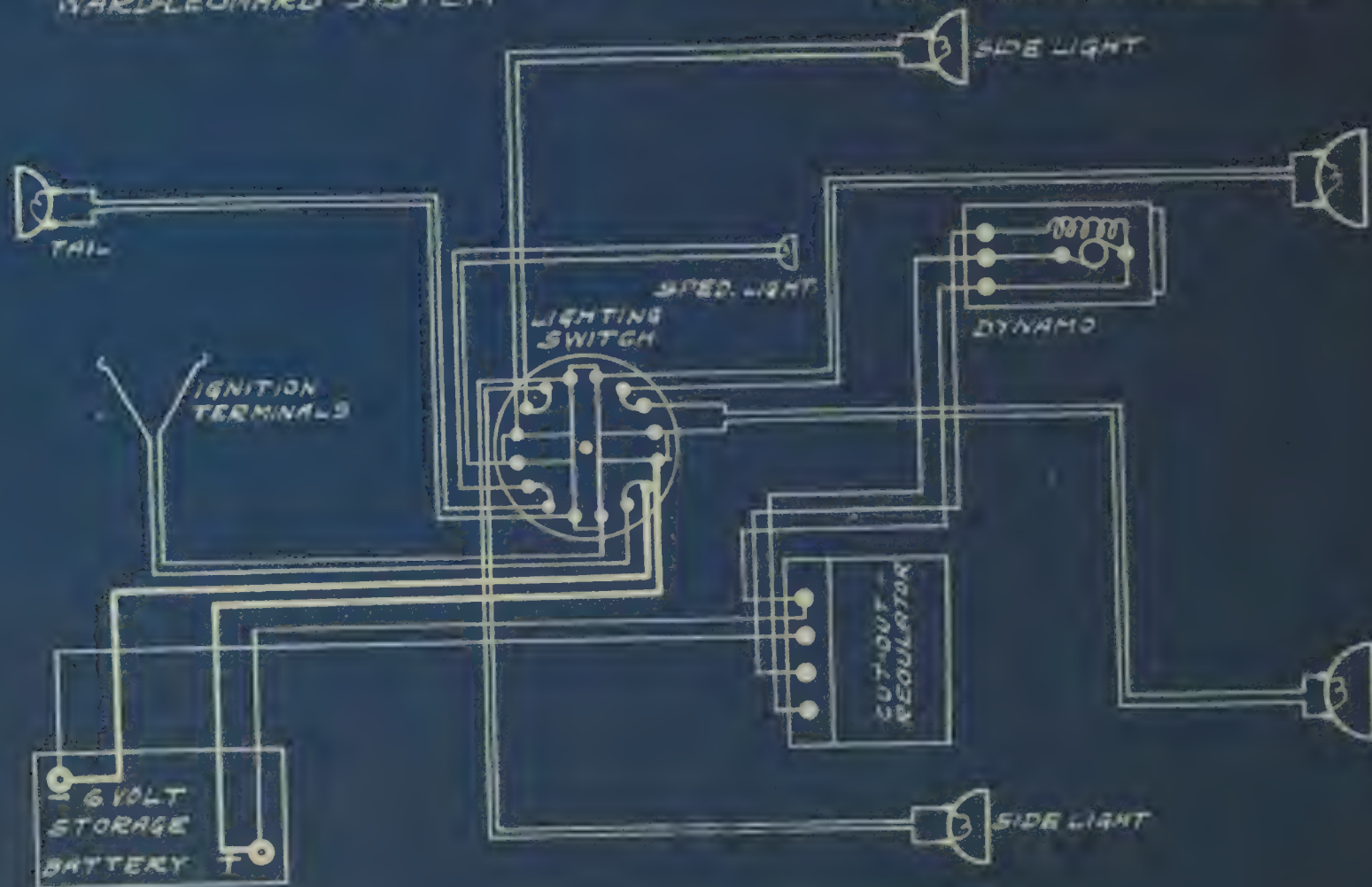


HAYNES MODELS 38-39-39-S 1918. MODEL 45-1919-1920  
 LEECE-NEVILLE SYSTEM - REMY 10N



HENDERSON 1913-14  
WARD-LEONARD SYSTEM

FROM WARD-LEONARD BULLETIN

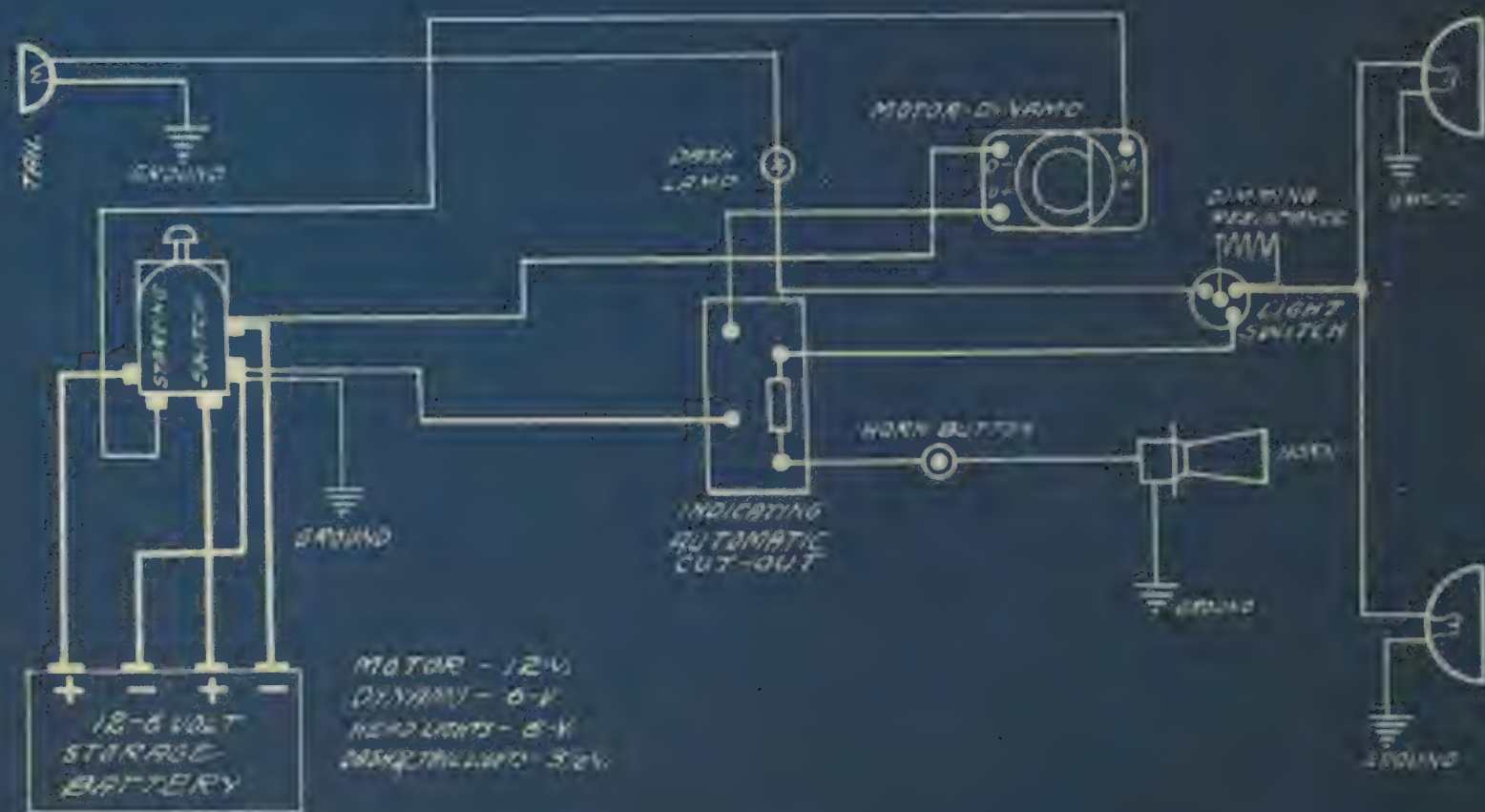






# HERFF-BROOKS 1916 SPLITDORF-APELCO SYSTEM

FROM SPLITDORF MANUAL

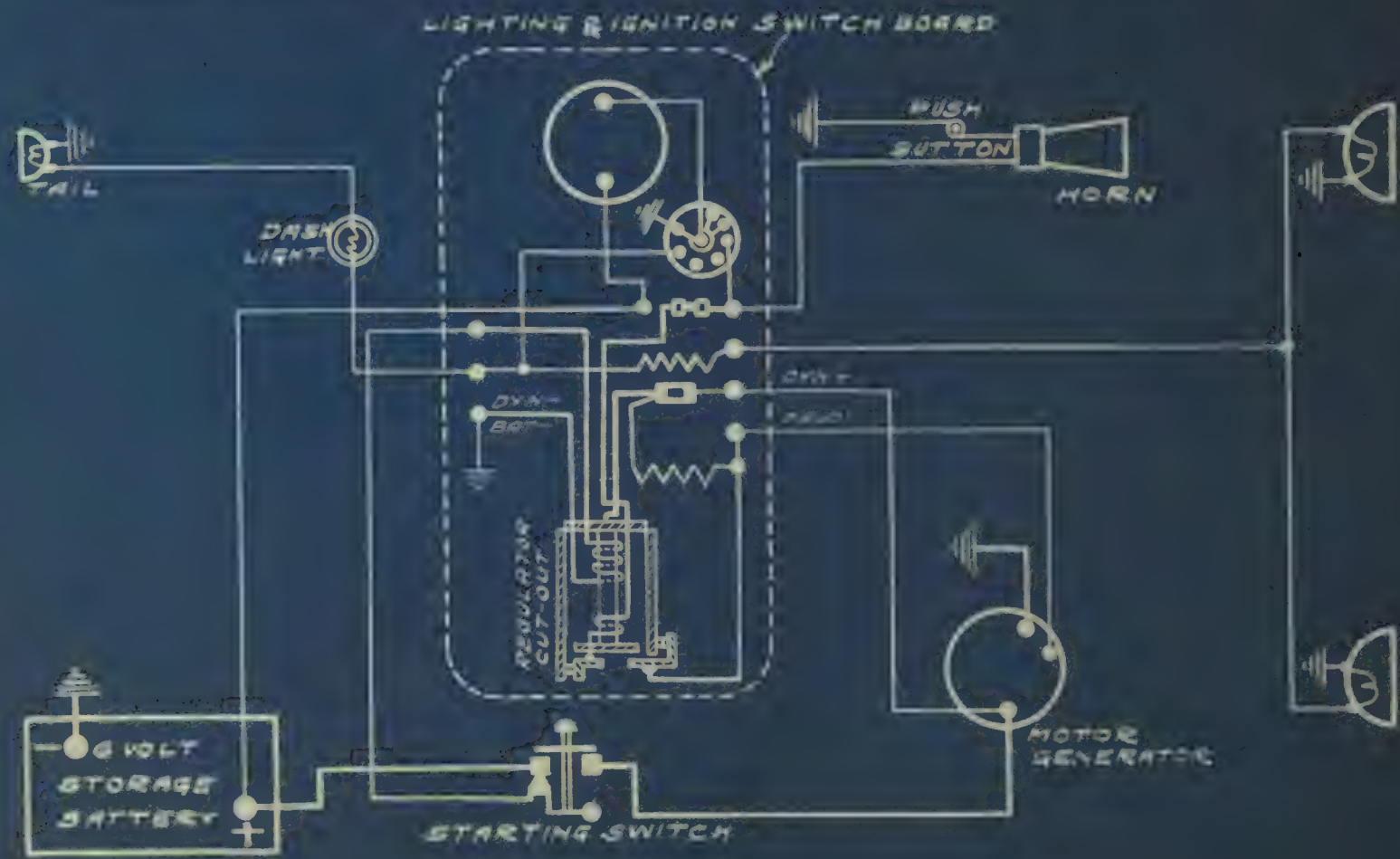




# HOLLIER 1917 166

ALLIS-CHALMERS SYSTEM

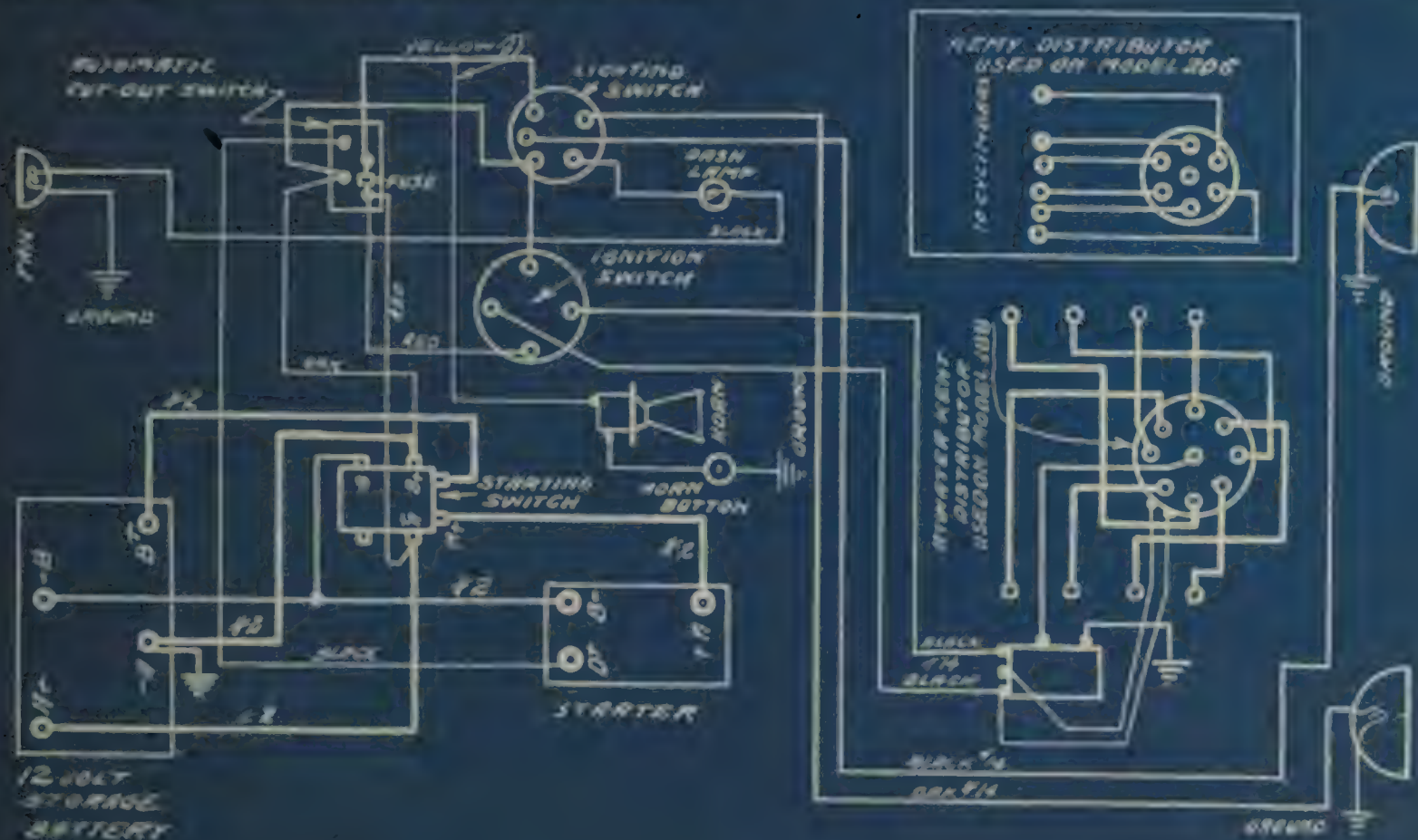
FROM A.C. 8/P S.K. 10876





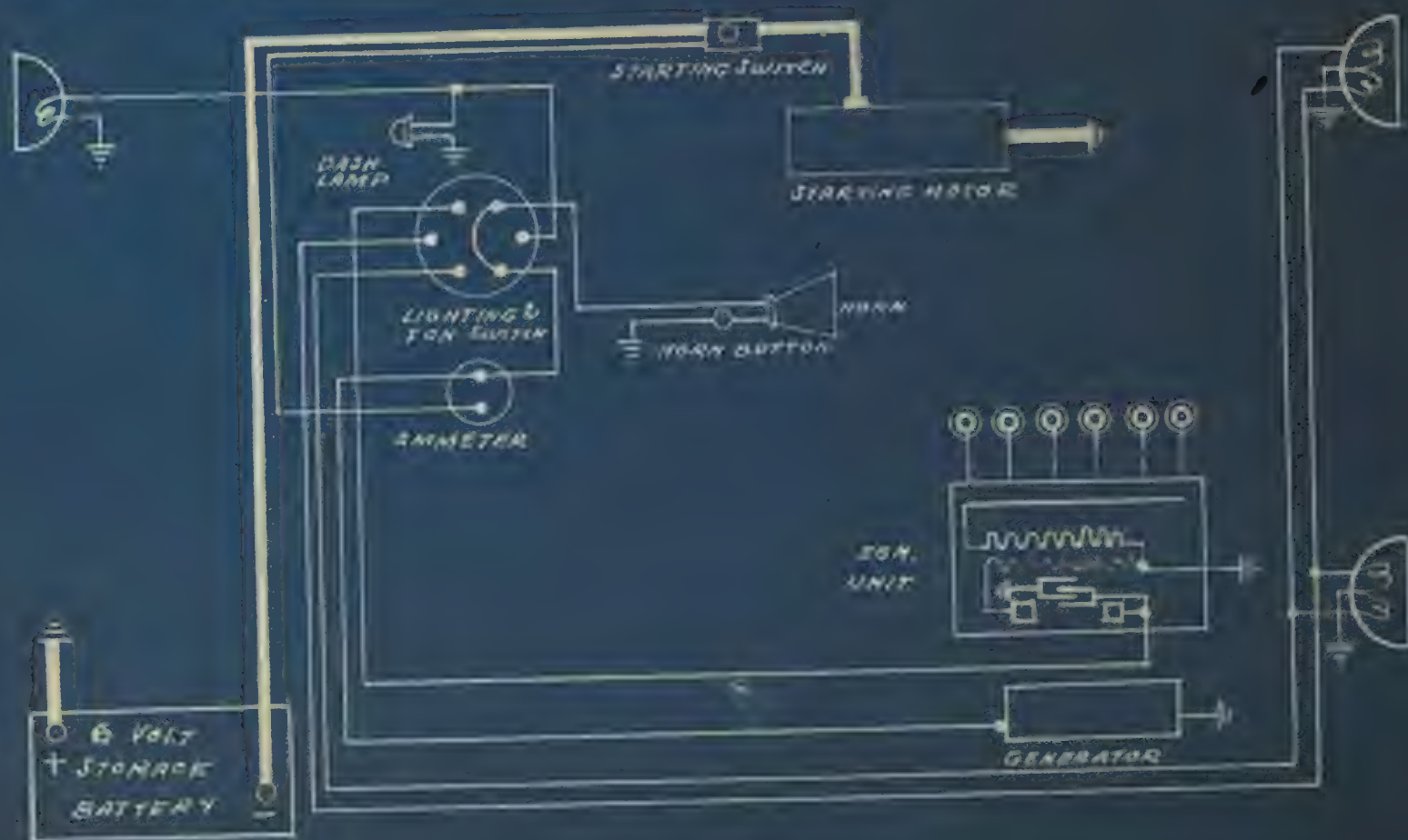
# HOLLIER MODEL 188 206 1918 SPLIT-POLE STARTING & LIGHTING SYSTEM

FROM FACTORY BA-3013



HOLLIER MODEL "206B" 1920  
WESTINGHOUSE SYSTEM

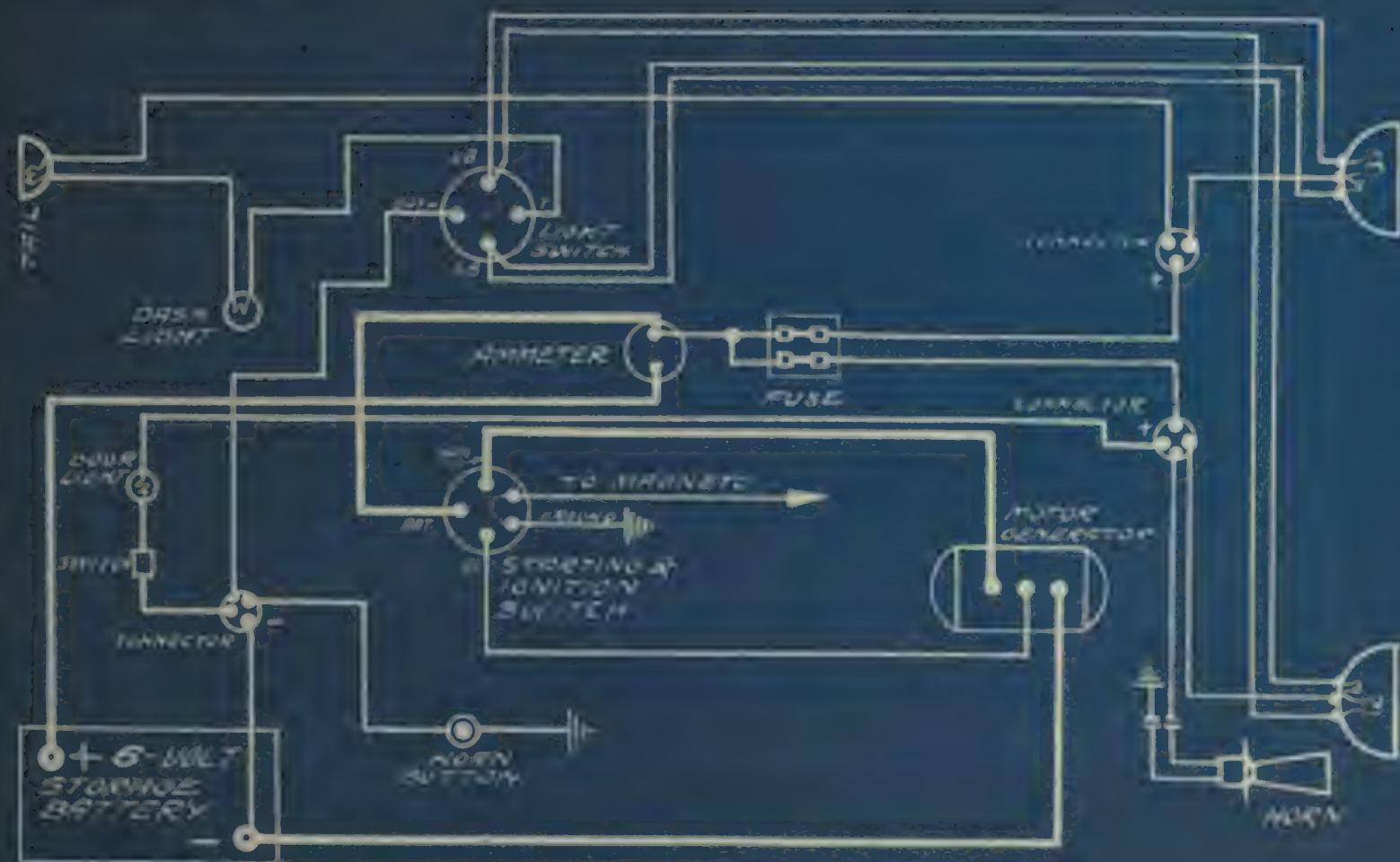
### FRONT VIEW DRAWING



# HOLMES 1918-1919-1920

DYNEDO SYSTEM

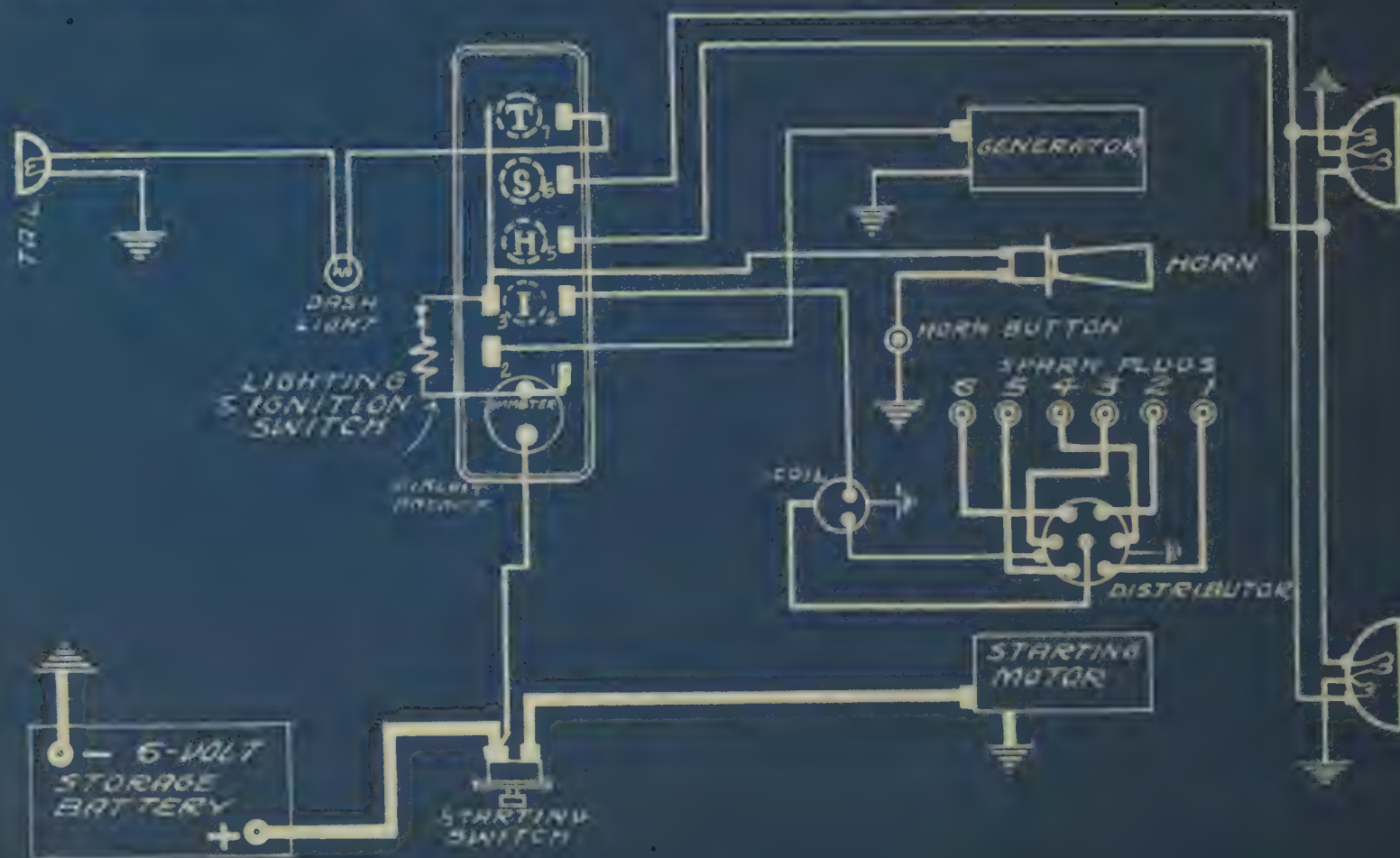
FRONT TIERS BLUE PAINTING





# HOWARD 1917 DELCO SYSTEM

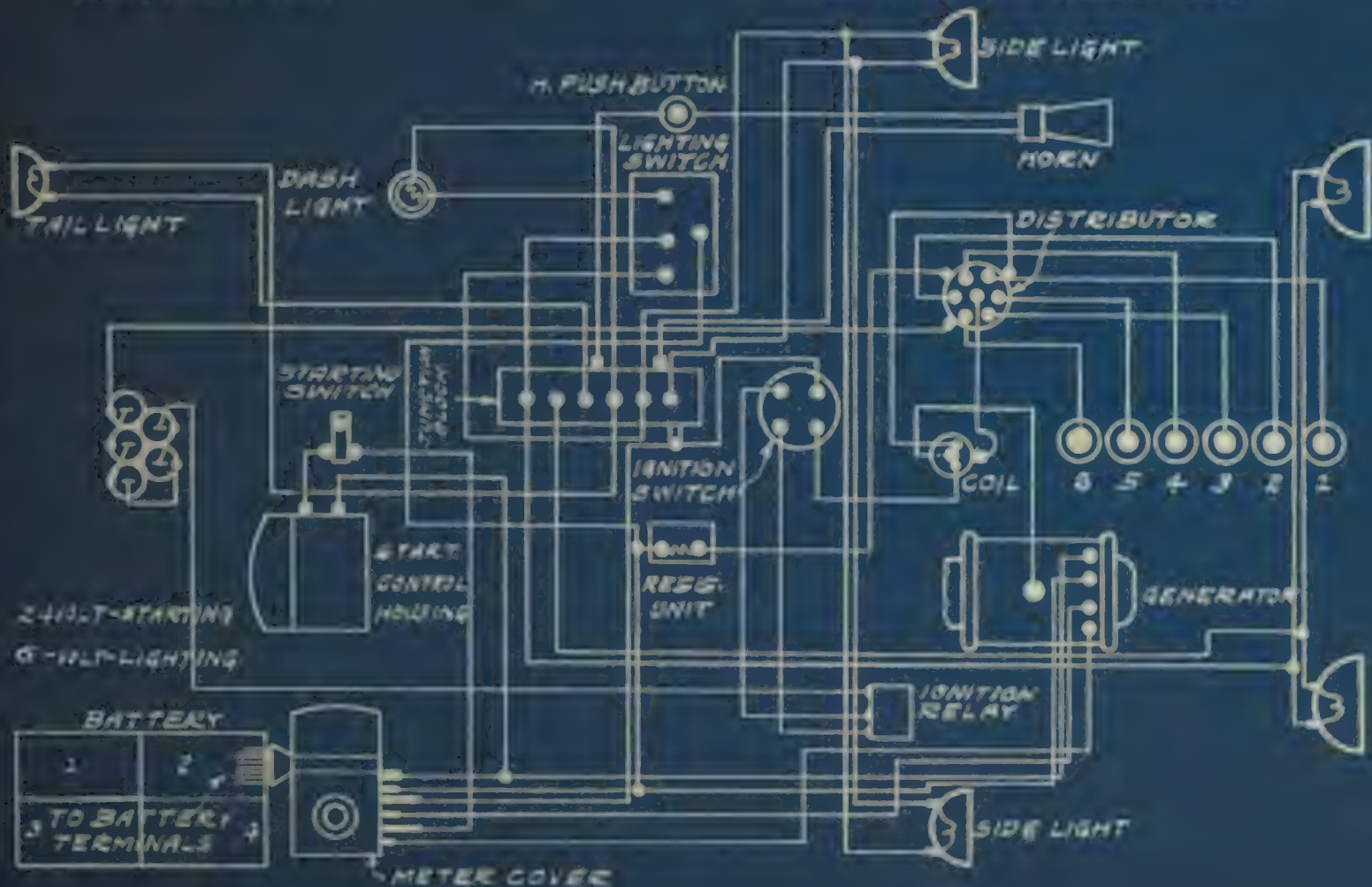
FROM MRS. BR



# HUDSON 1913 37&54

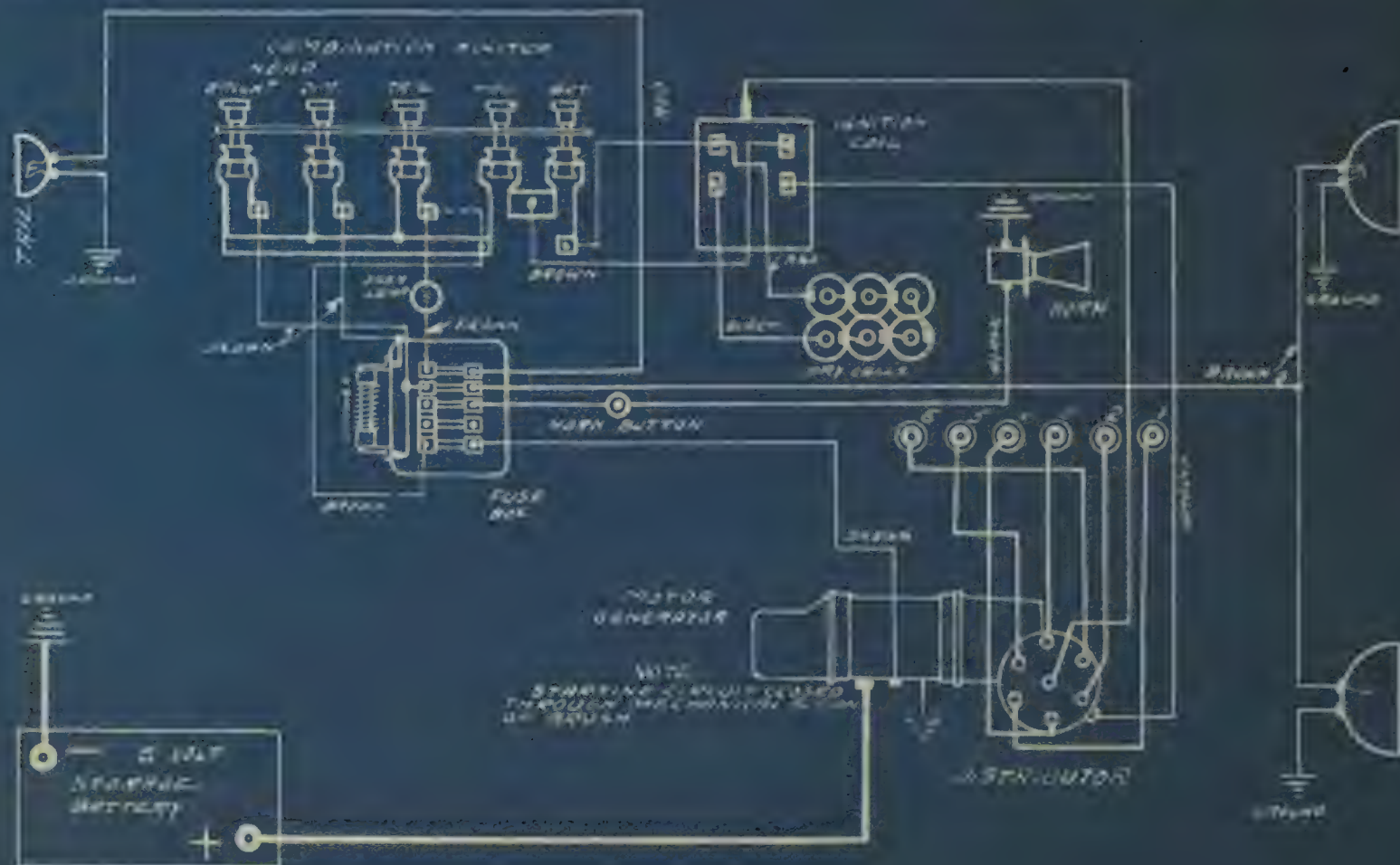
## DELCO SYSTEM

FROM HUDSON INSERT #125



# HUDSON 1914-1915 6-40 DELCO SYSTEM

FROM HUDSON INST. BOOK

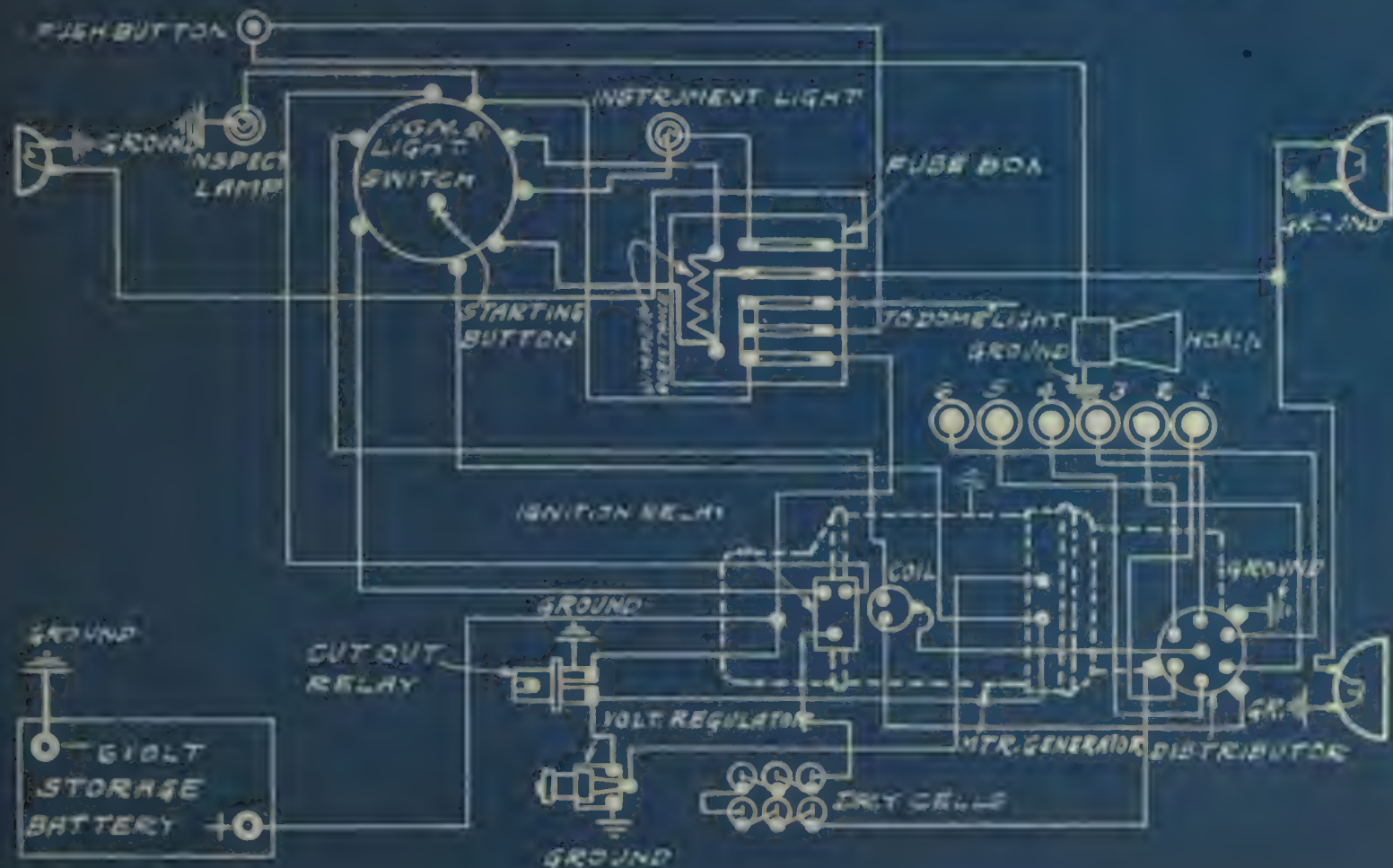




# HUDSON 1914-15 6-54

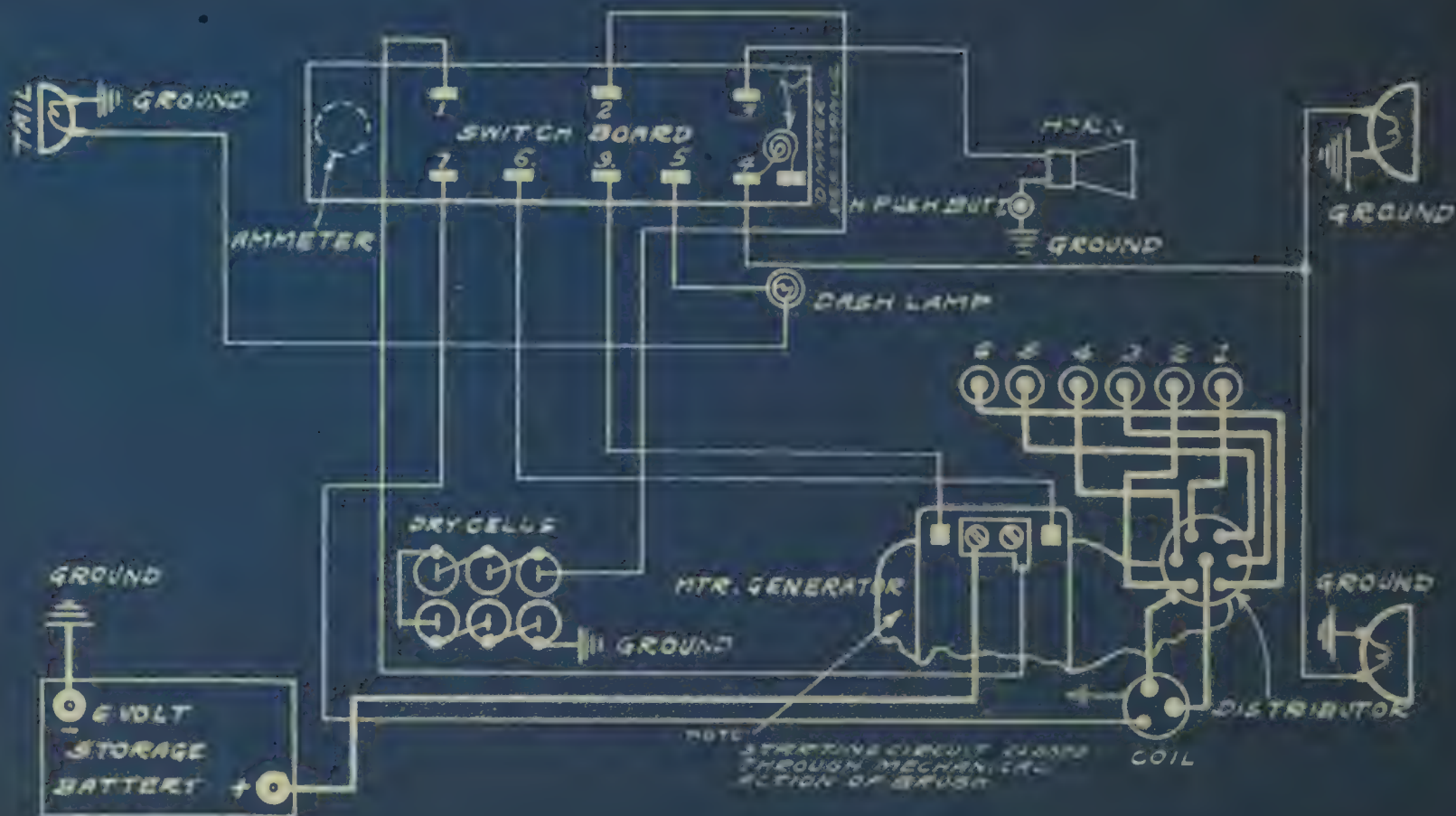
DELCO SYSTEM

FROM HUDSON INSERT #125



# HUDSON 1916 6-40 DELCO SYSTEM

FROM HUDSON INSERT #125



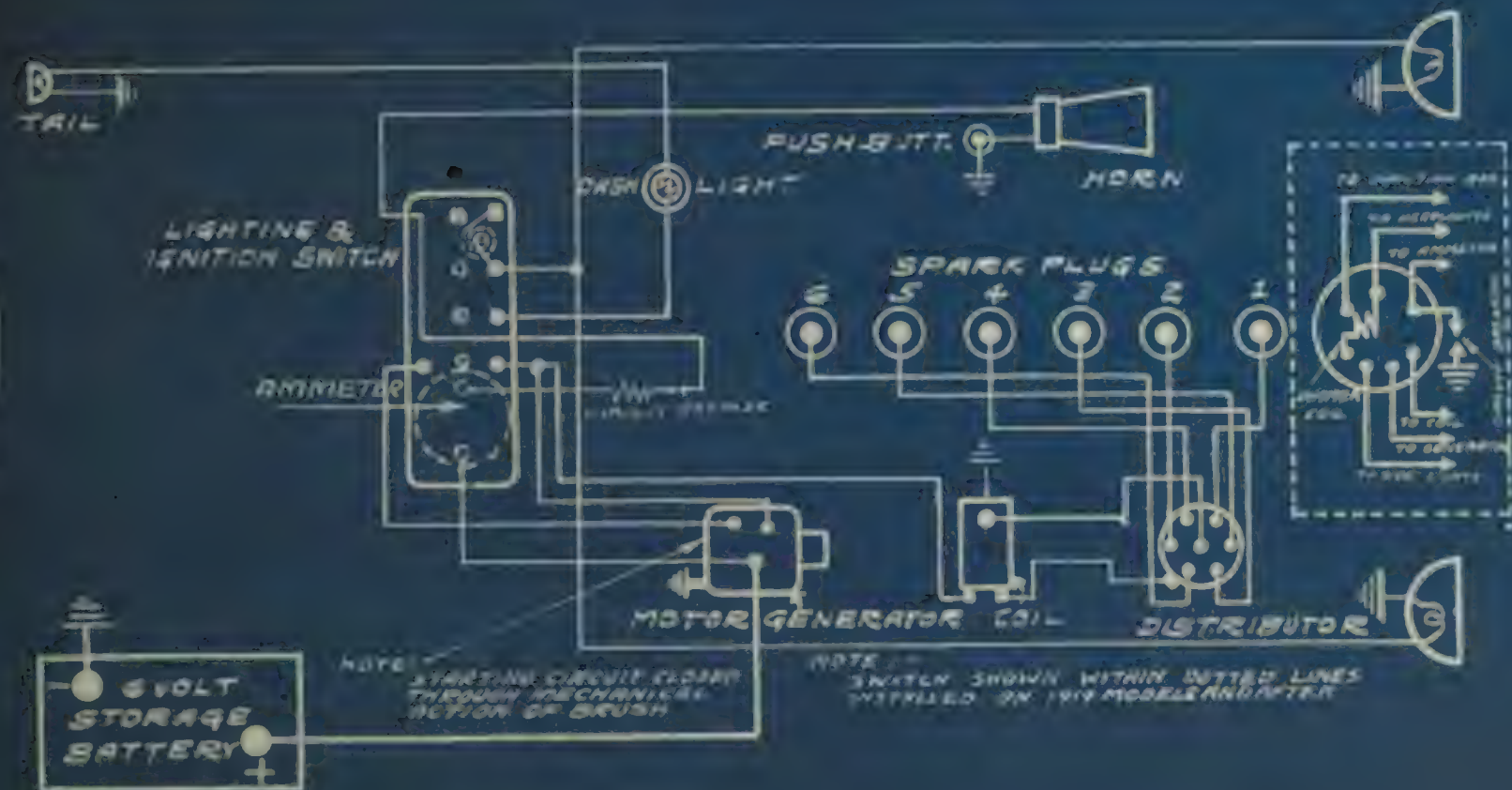
AUTOMOBILE PUBLISHING CO.  
CHICAGO, ILL.

# HUDSON SUPER-SIX 1916-17-18-19-20

DELCO SYSTEM

FROM FACTORY S/P 14323

Automotive Corporation

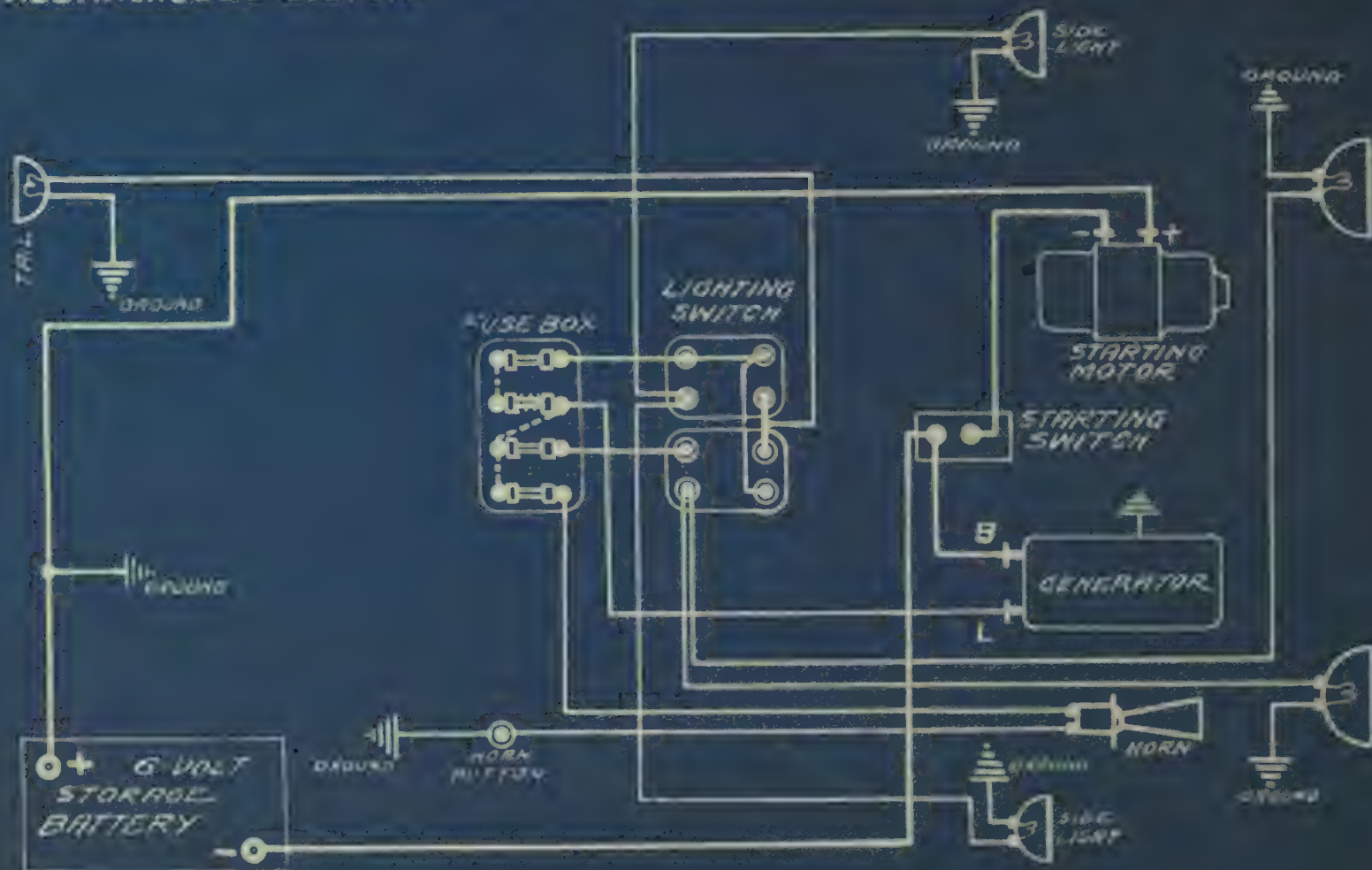




# HUPMOBILE 1914-1915 "HA"

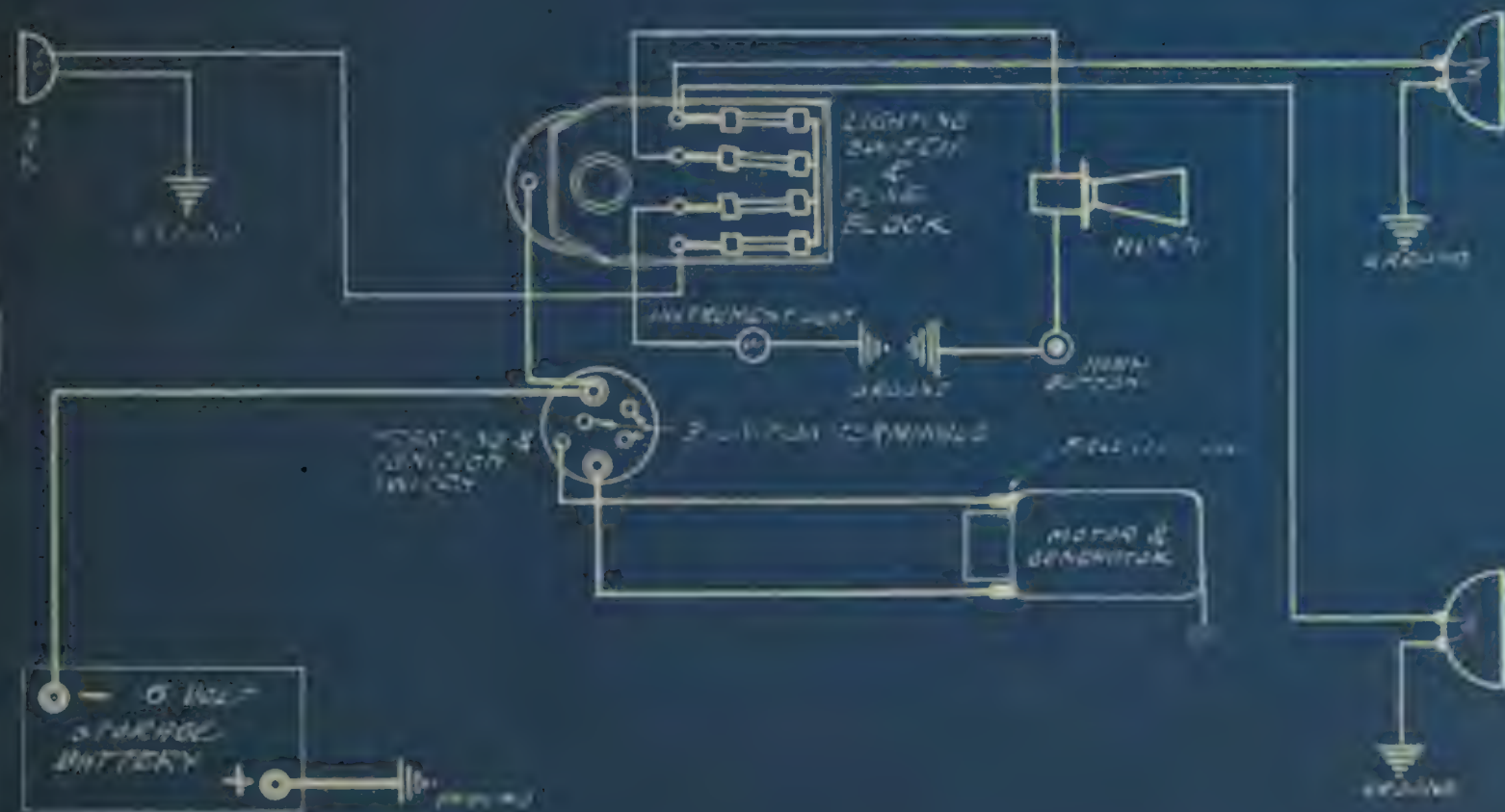
WESTINGHOUSE SYSTEM

FROM HUPP BF HA-5274



HUPMOBILE 1915 "K"  
WESTINGHOUSE STARTING & LIGHTING SYSTEM

2014年4月25日

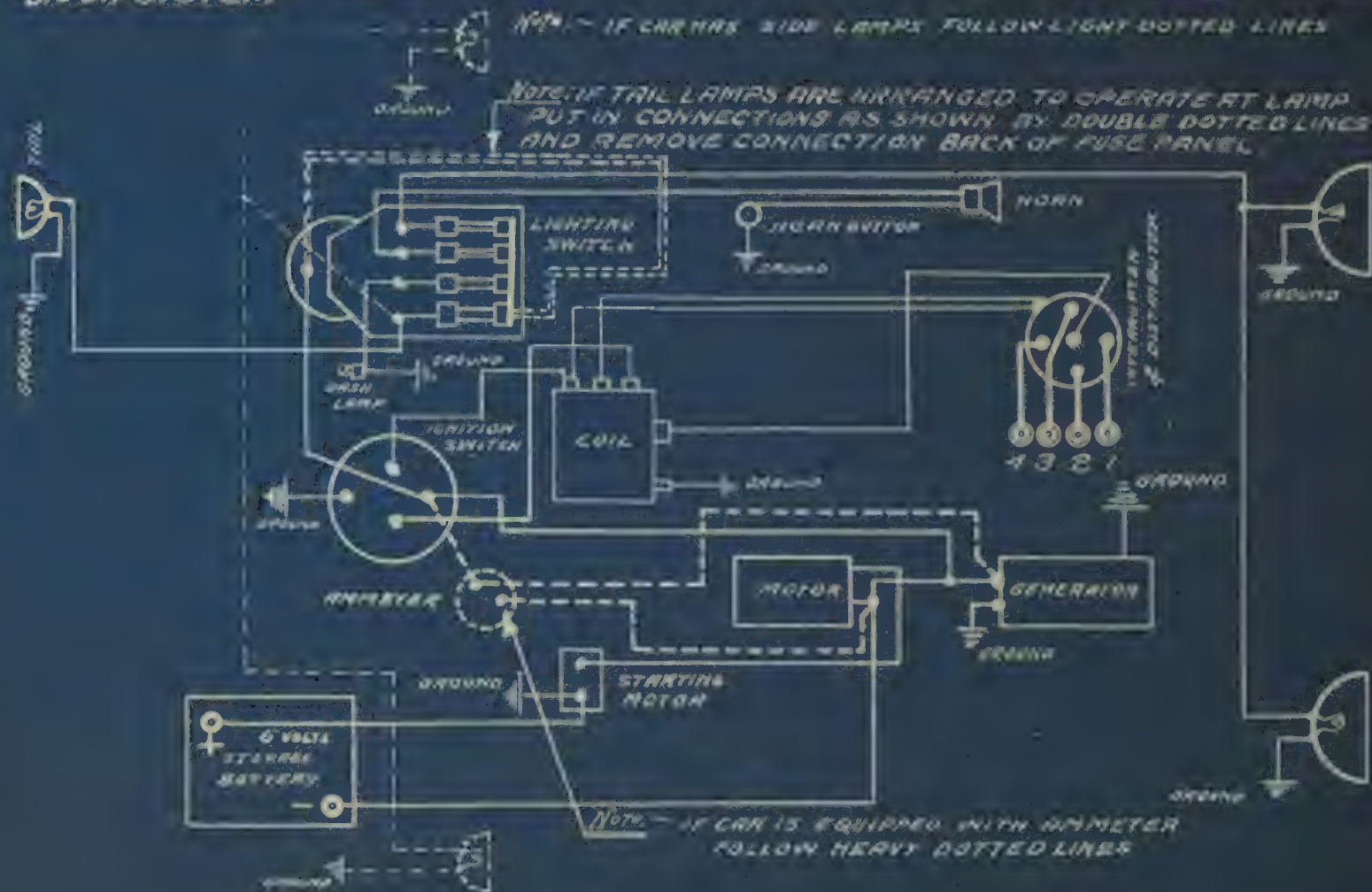


# HUPMOBILE 1916 "N" BIZUR SYSTEM

FROM-BR. 40381-41825-41618-41064

NOTE - IF CAR HAS SIDE LAMPS FOLLOW LIGHT DOTTED LINES

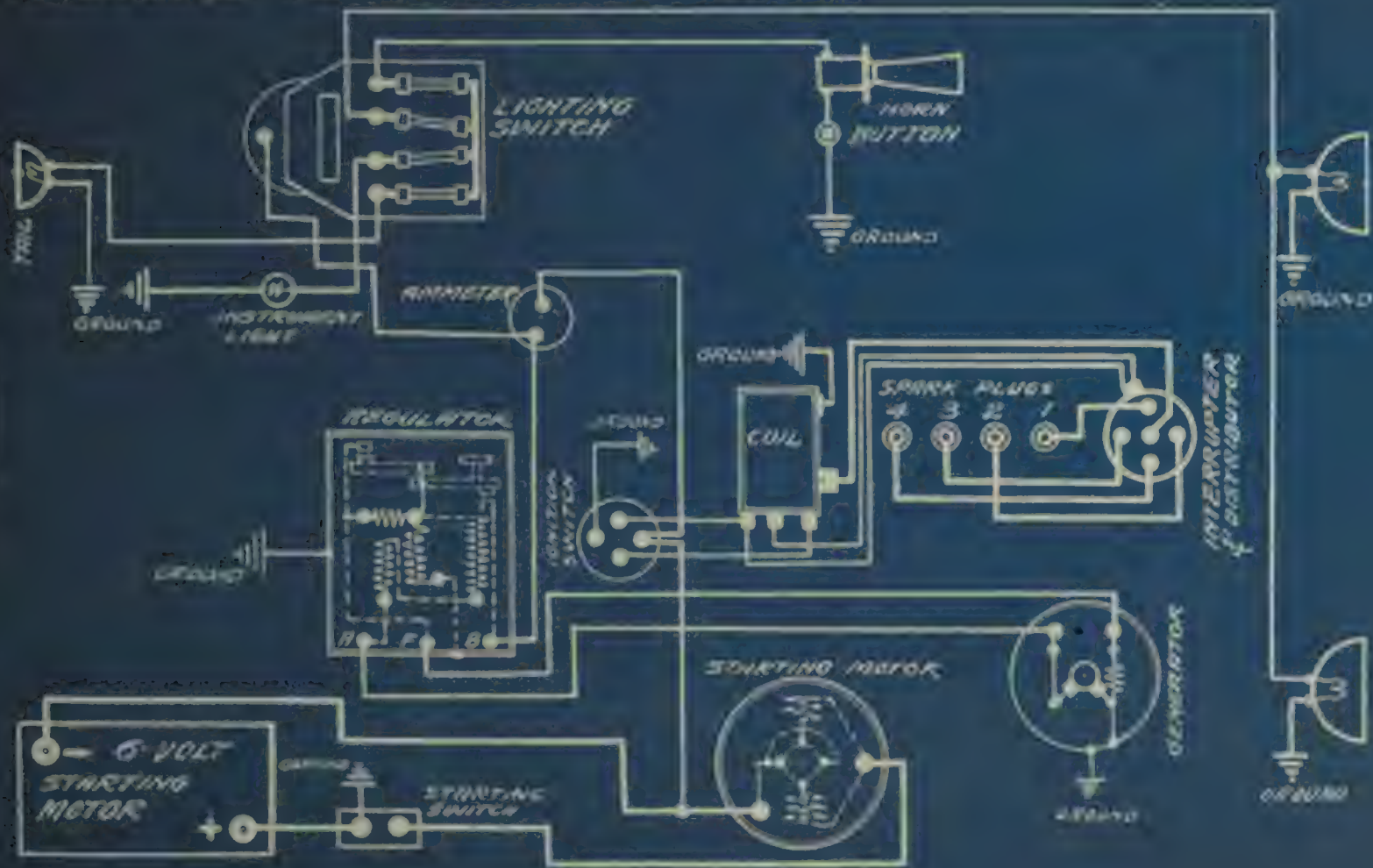
NOTE: IF TAIL LAMPS ARE ARRANGED TO OPERATE AT LAMP PUT IN CONNECTIONS AS SHOWN BY DOUBLE DOTTED LINES AND REMOVE CONNECTION BACK OF FUSE PANEL





# HUPMOBILE 1916-7 "N" WESTINGHOUSE SYSTEM & ATWATER-KENT IGNITION

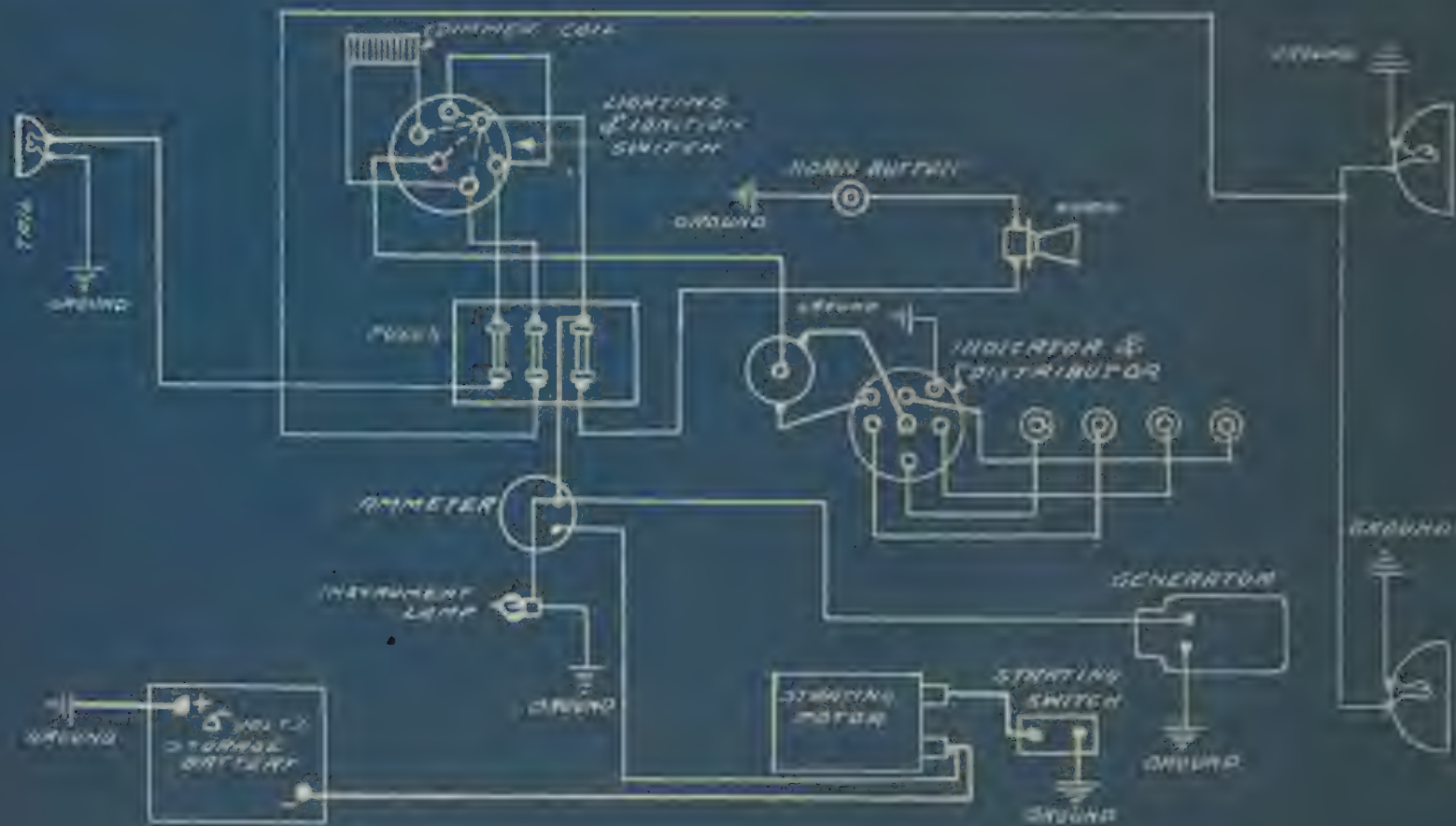
FROM MFRS. BR. 43155



# HUPMOBILE 1918 "R" 1919 EARLY MODELS

BIGUR SYSTEM ACTIVATOR KENTON.

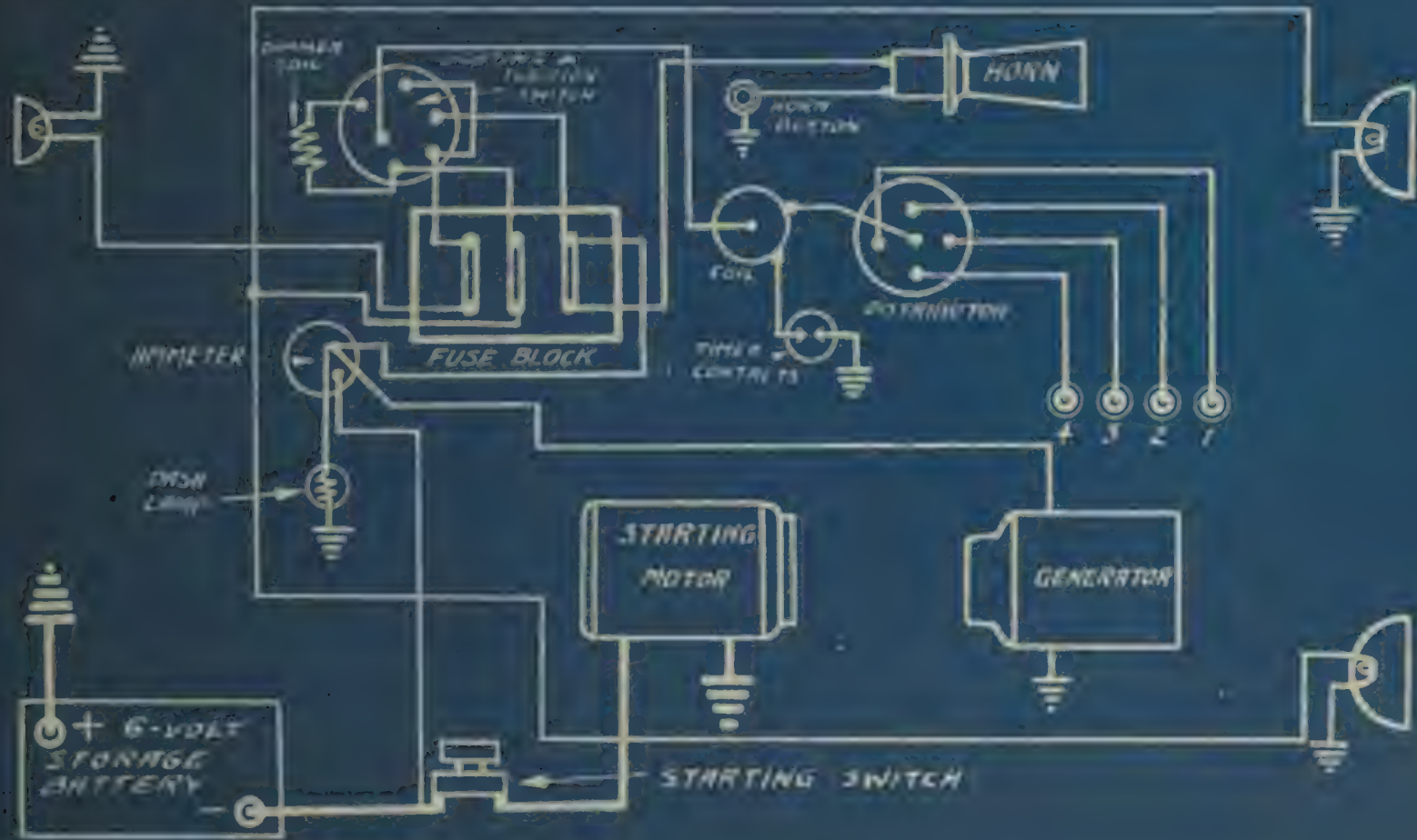
WIRING DIAGRAM



## REMY IGNITION

R-3

FROM MFRS. B.P. 46569



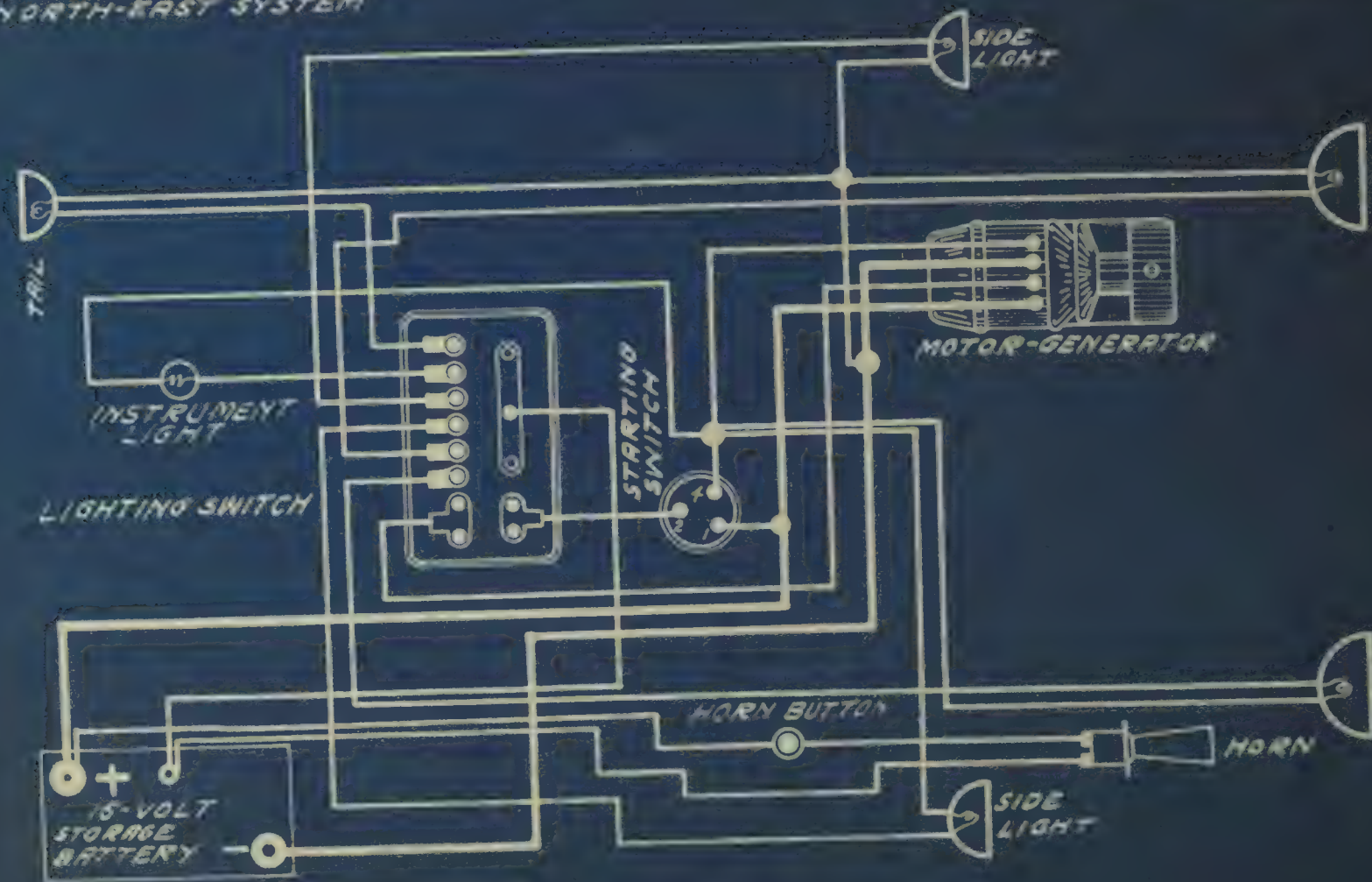


# IMPERIAL 1913

NORTH-EAST SYSTEM

"34"

FROM N.-E. PLATE 180



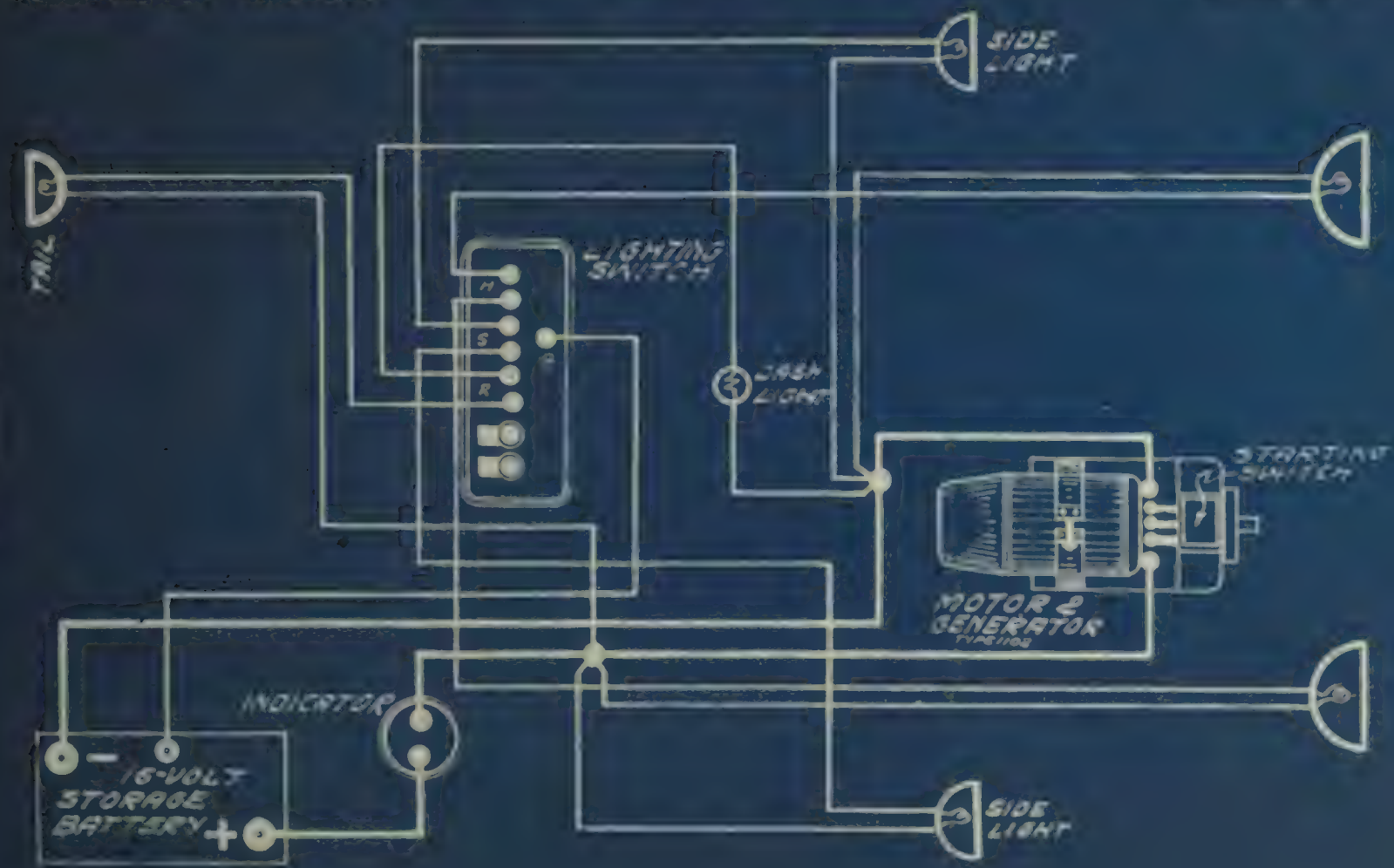
AUTOMOTIVE PUBLICATIONS CO.  
CHICAGO, ILL. U.S.A.

IMPERIAL 1914  
NORTH-EAST SYSTEM

32-34-39-44-54 & 56

FROM NO. PLATES  
229-230-240

AUTOMOTIVE PUBLISHING CO.  
NEW YORK

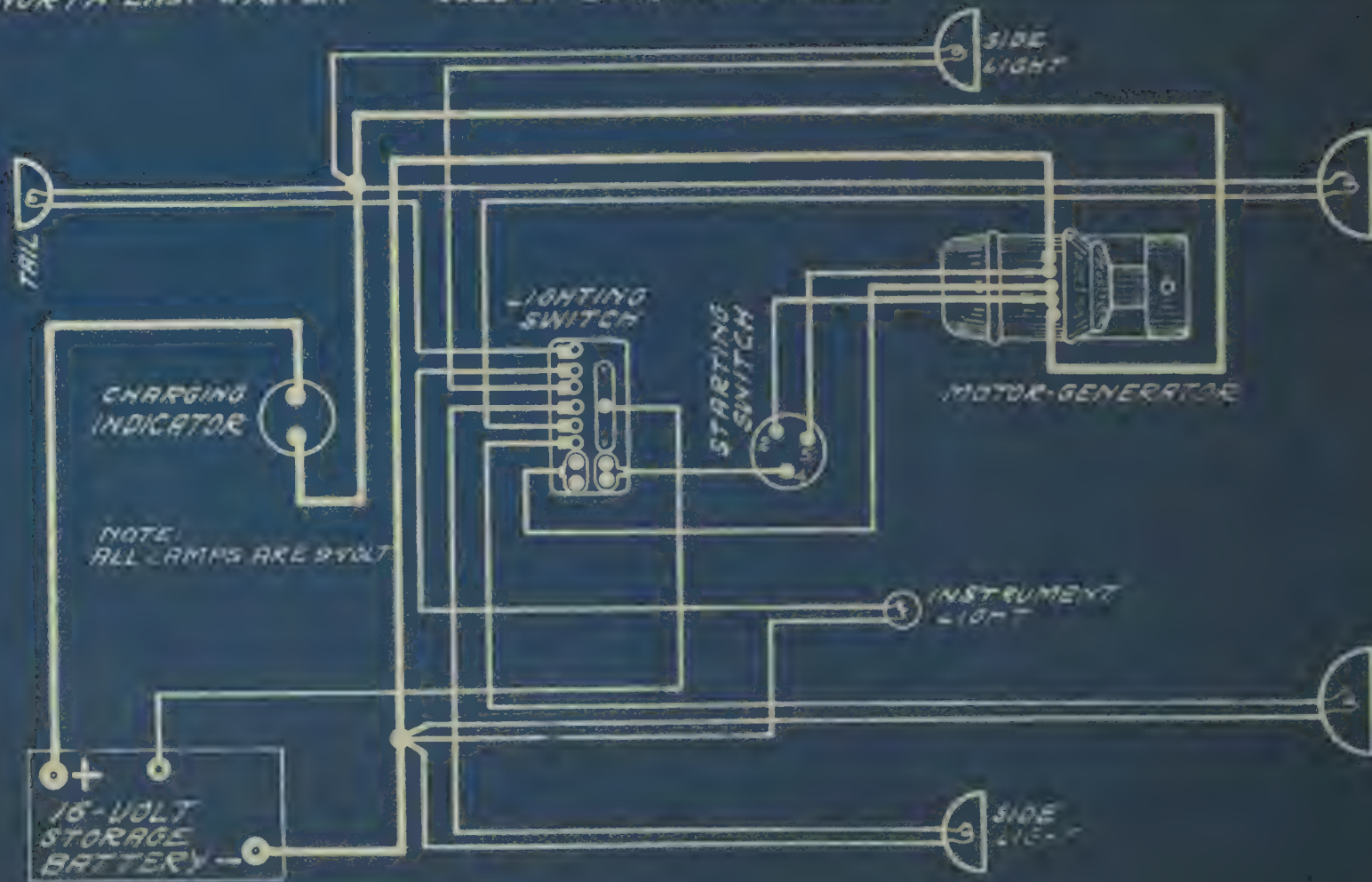


# IMPERIAL 1914 "34"

NORTH-EAST SYSTEM

USED ON EARLY 1914 MODEL

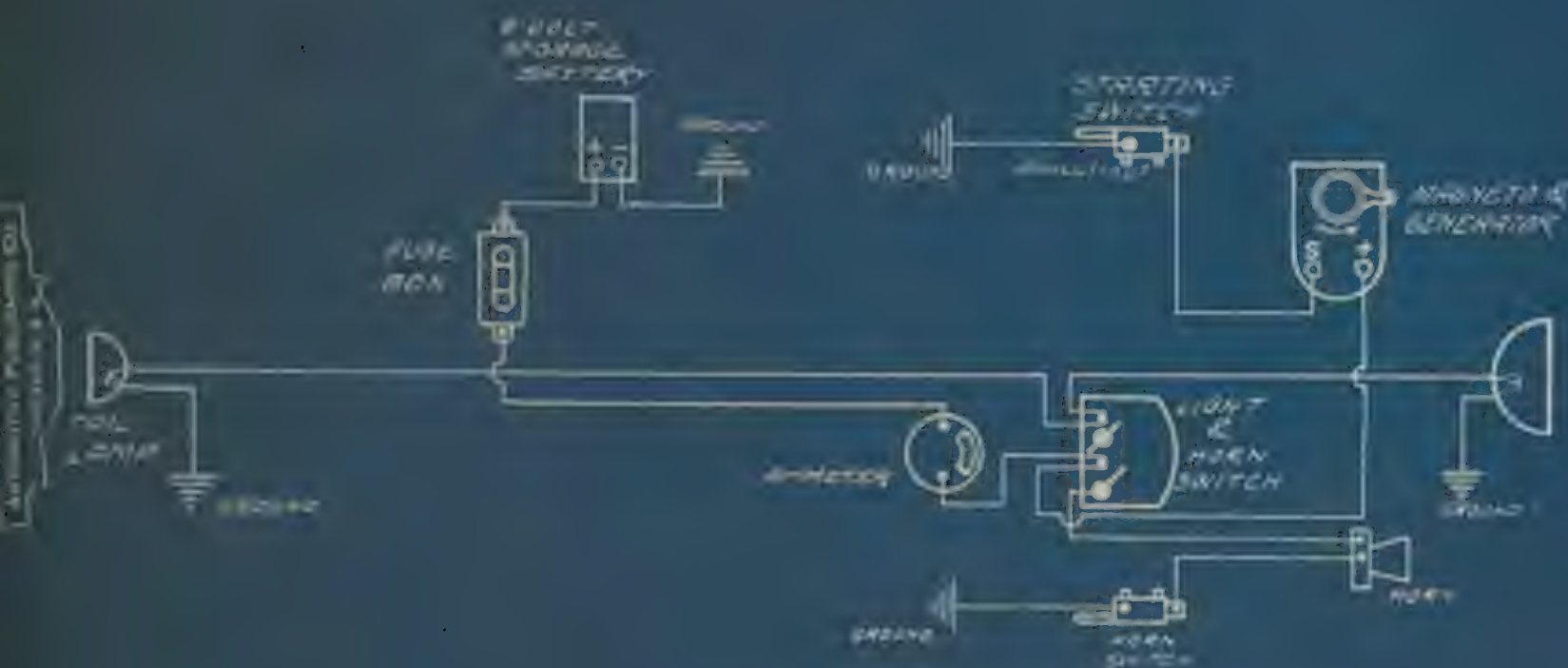
FROM N-E PLATE 130





# INDIAN MOTORCYCLE SPLITCOIL SYSTEM

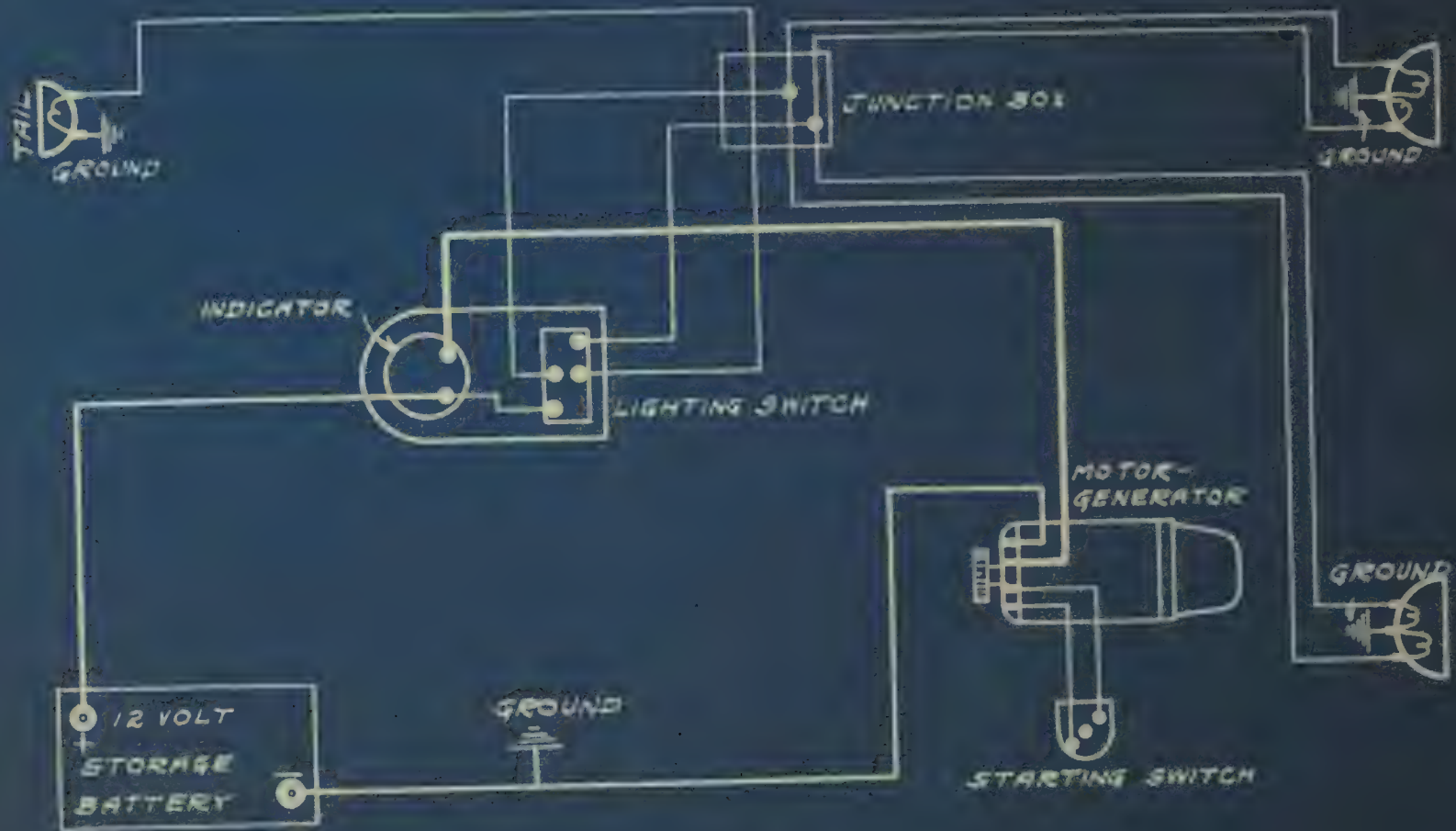
FROM SPLIT MANUAL



# INTERNATIONAL HARVESTER TRUCK

NORTH-EAST SYSTEM

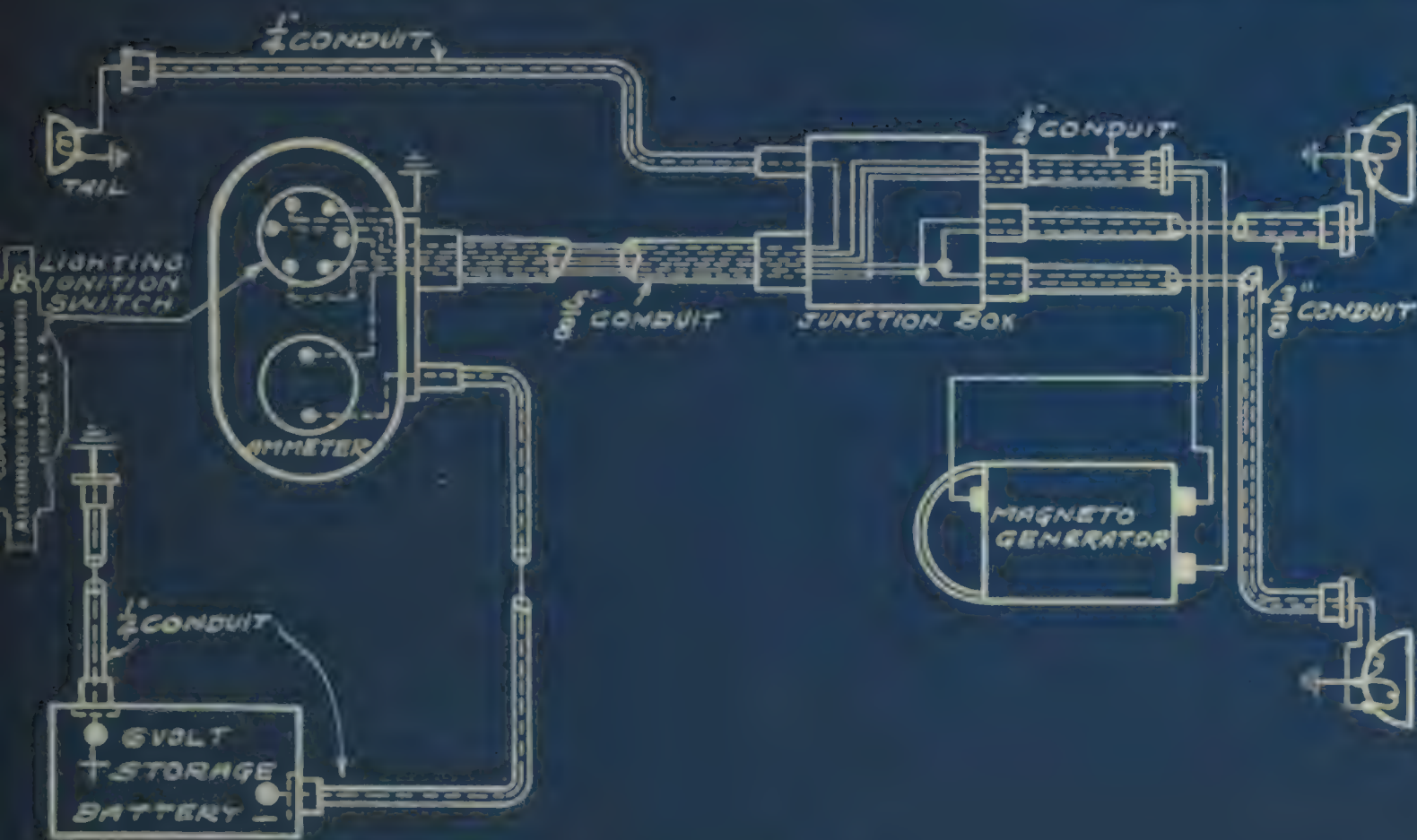
FROM NORTH-EAST PLATE 380



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# INTERNATIONAL HARVESTER TRUCK 1916-17 "F&H" BOSCH SYSTEM

FROM MFRS. B/P 7420-H

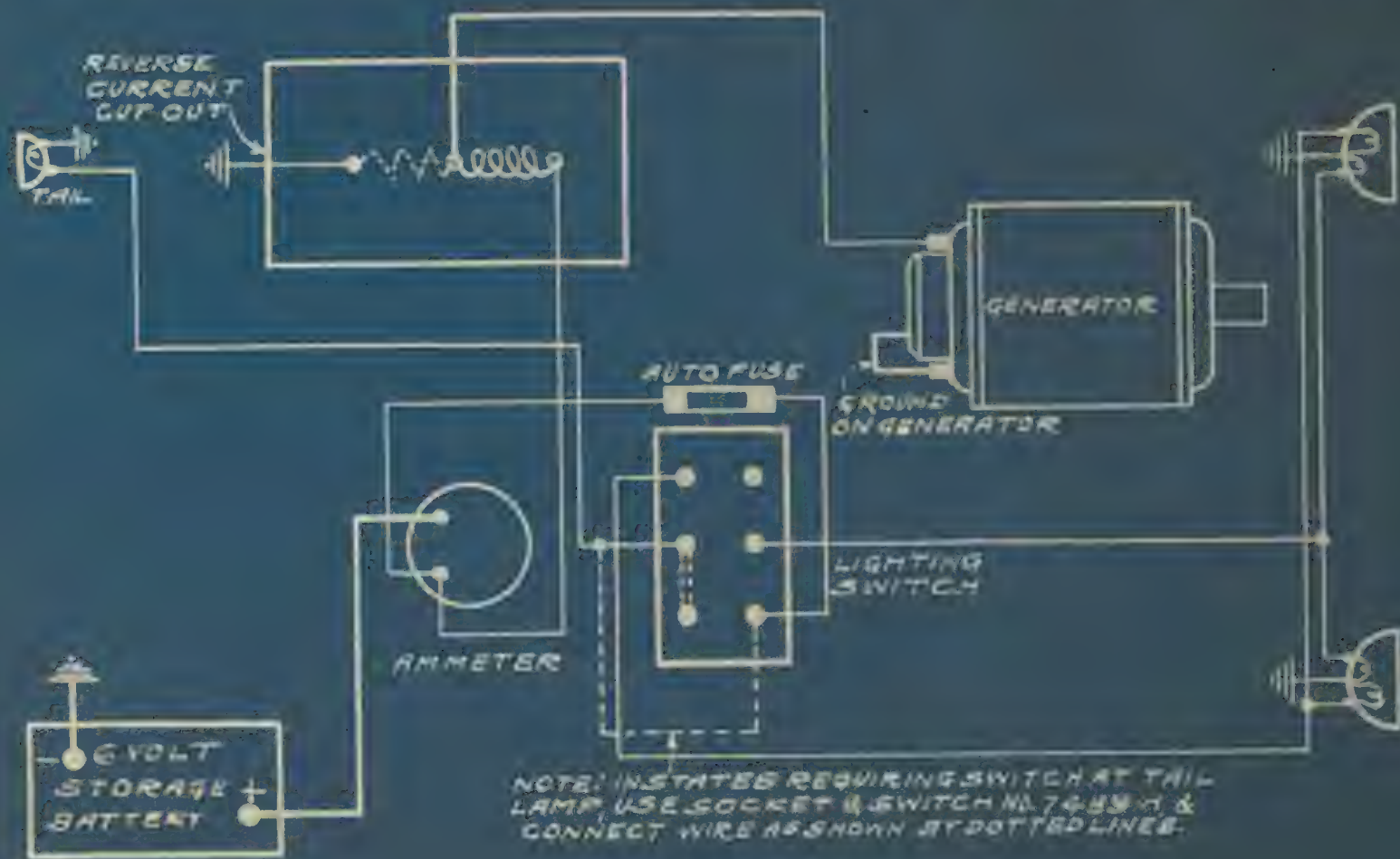




# INTERNATIONAL HARVESTER TRUCK 1918 F-G-H&K

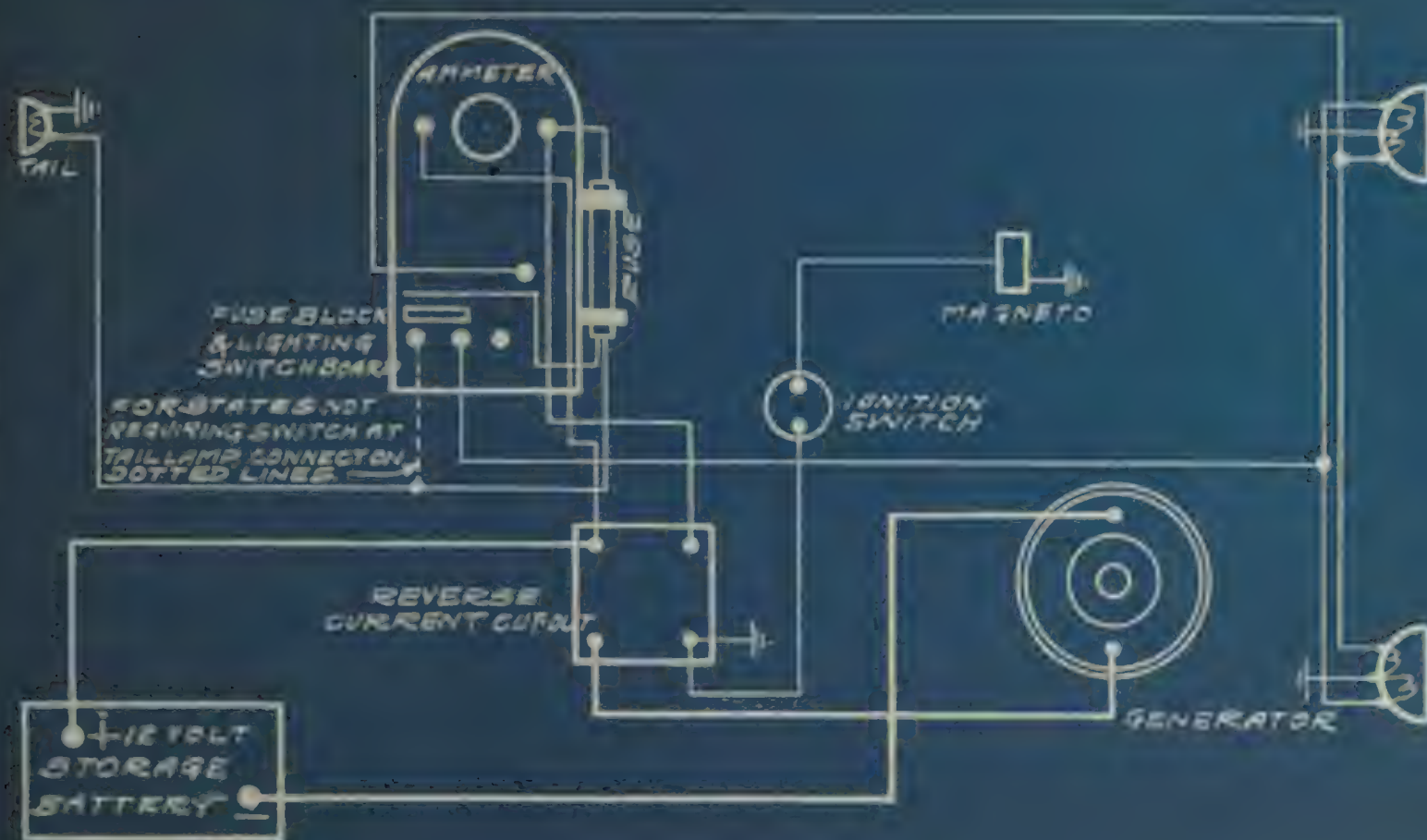
NORTHEAST LIGHTING SYSTEM

FROM MAR. 31 P. 7441-H



# INTERNATIONAL HARVESTER TRUCK 1918 ALL-MODELS

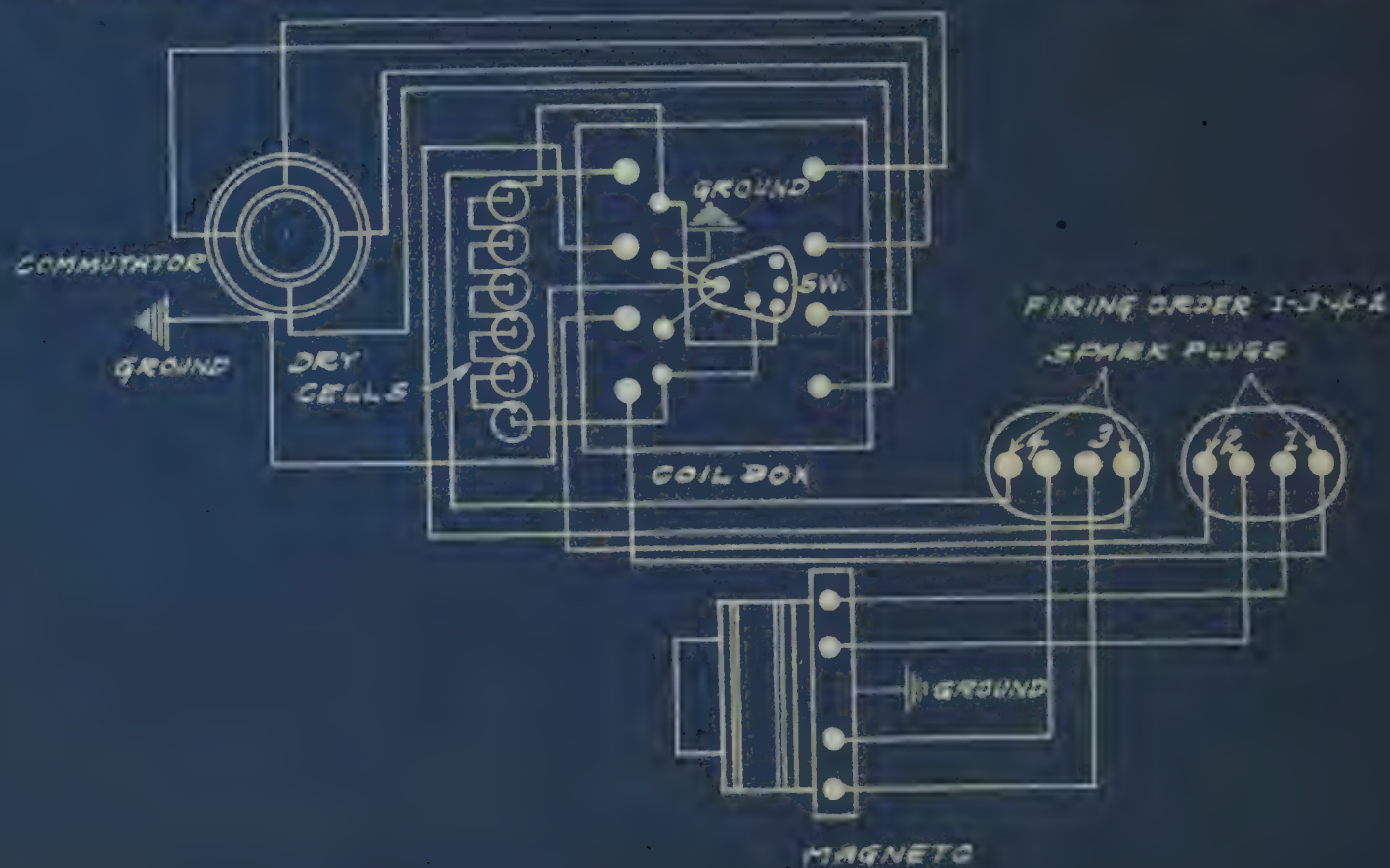
NORTHEAST SYSTEM FROM MFRS. B/P



INTER STATE 1909-10-11 25T034 INCL.

IGNITION WIRING

FROM INTER STATE INST. BOOK

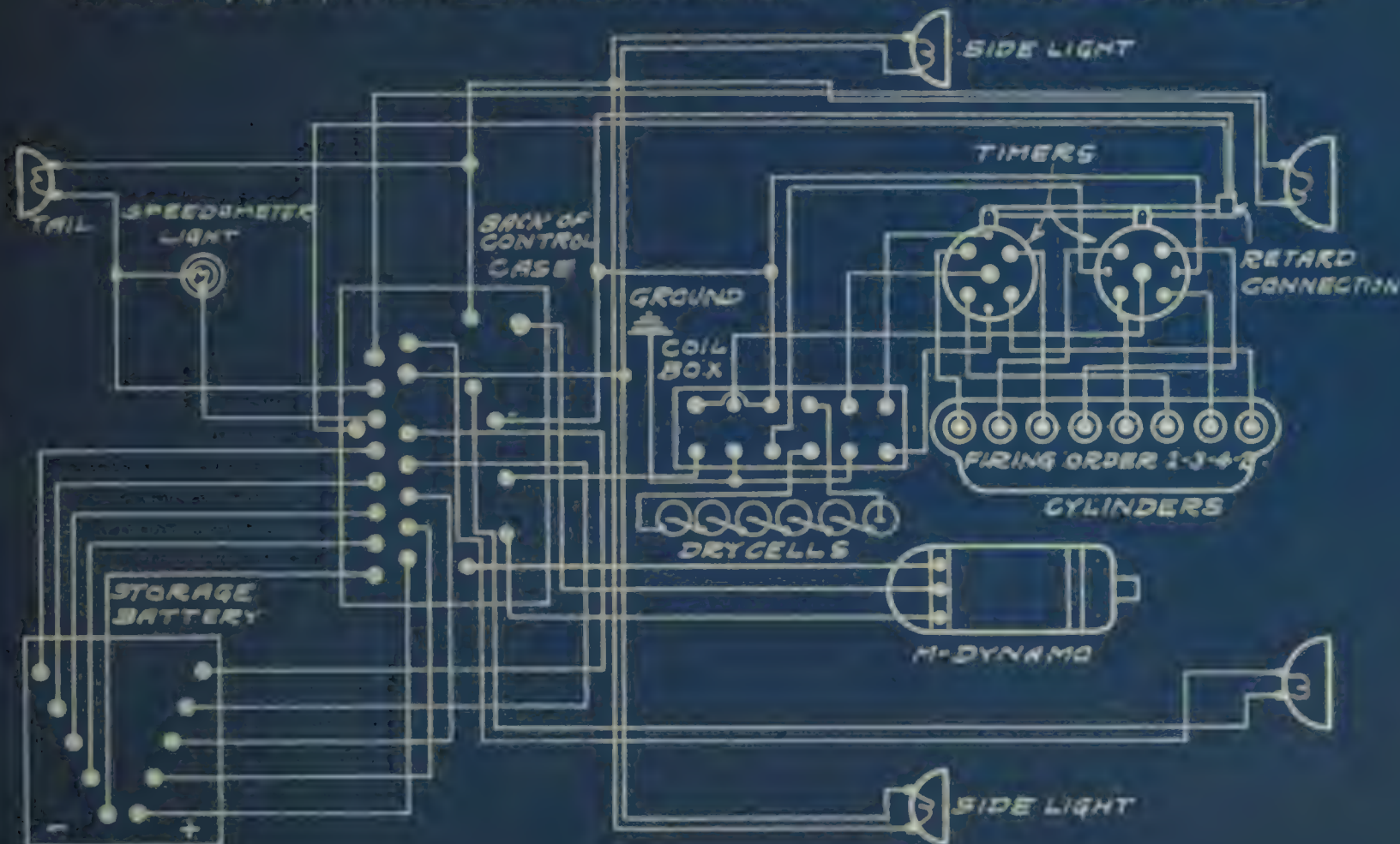




# INTER STATE 1912 40-41-42

STARTING & LIGHTING WIRING APELCO SYSTEM

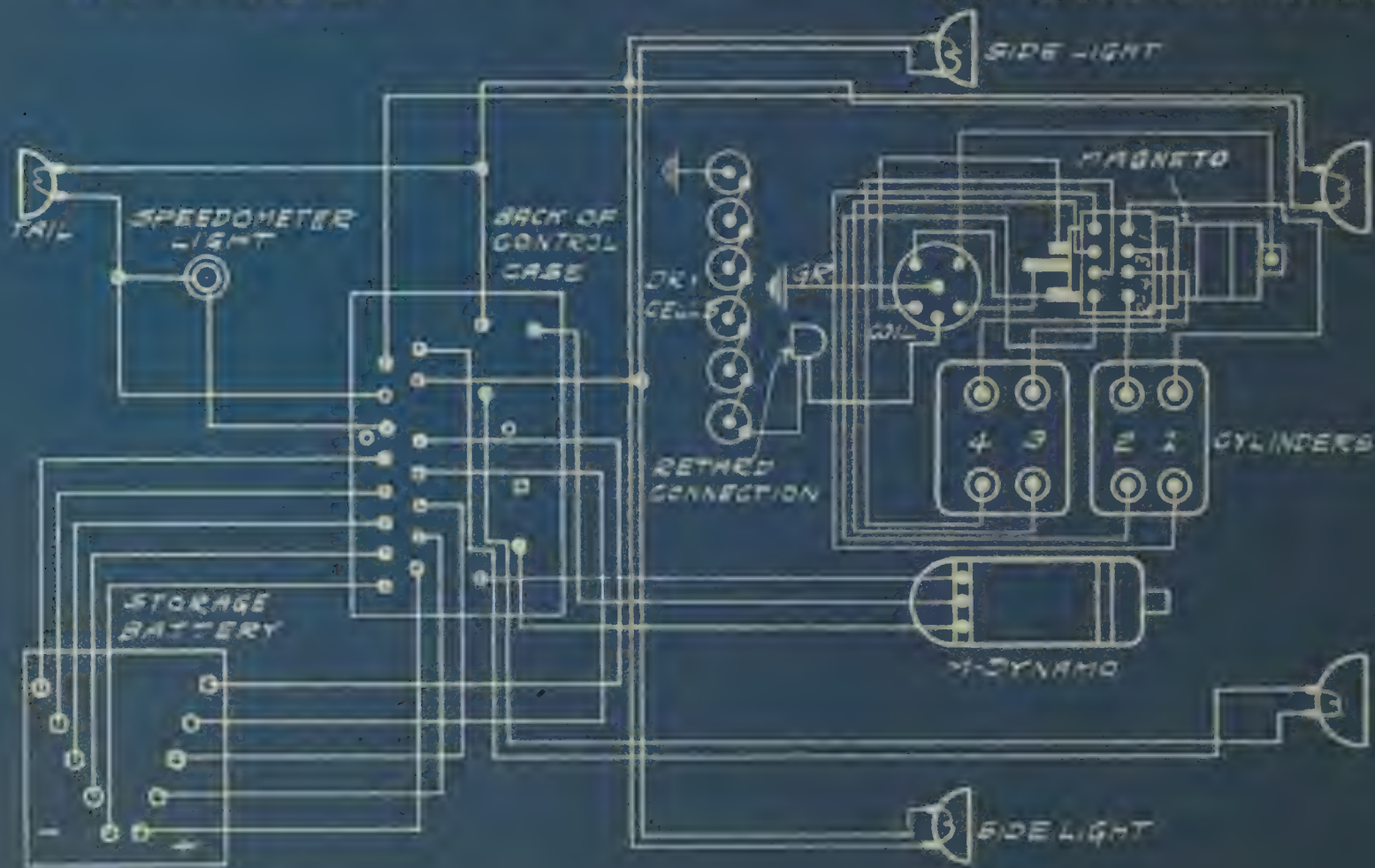
FROM INTER STATE INST. BOOK



# INTER STATE 1912 50-51-52

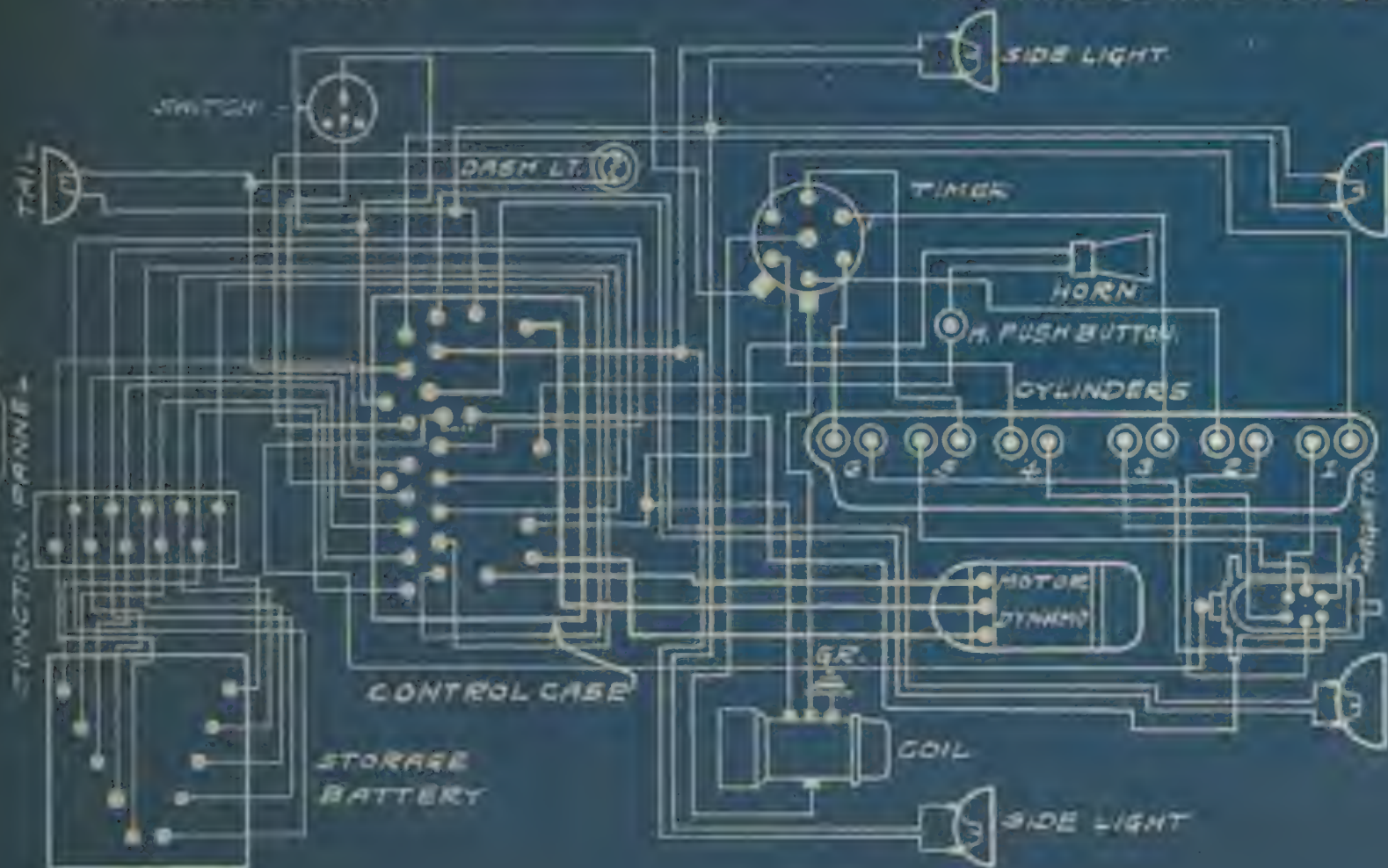
WELCO SYSTEM

FROM INTER STATE INST. BOOK



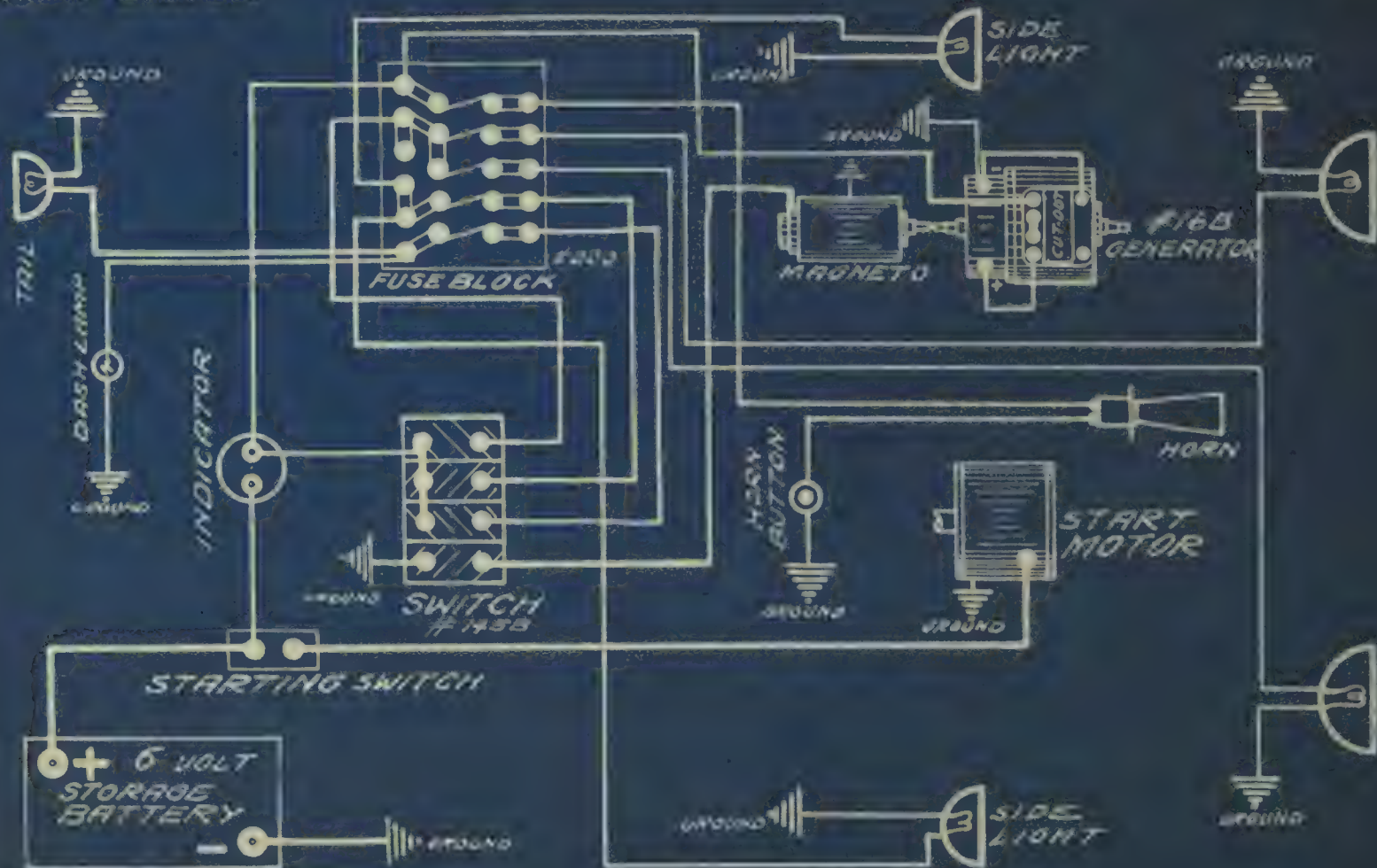


## FROM INTERSTATE NST BOOK





*INTER-STATE 1915-16-17-18 MODEL TF FROM REMY INST. BK.  
REMY SYSTEM*

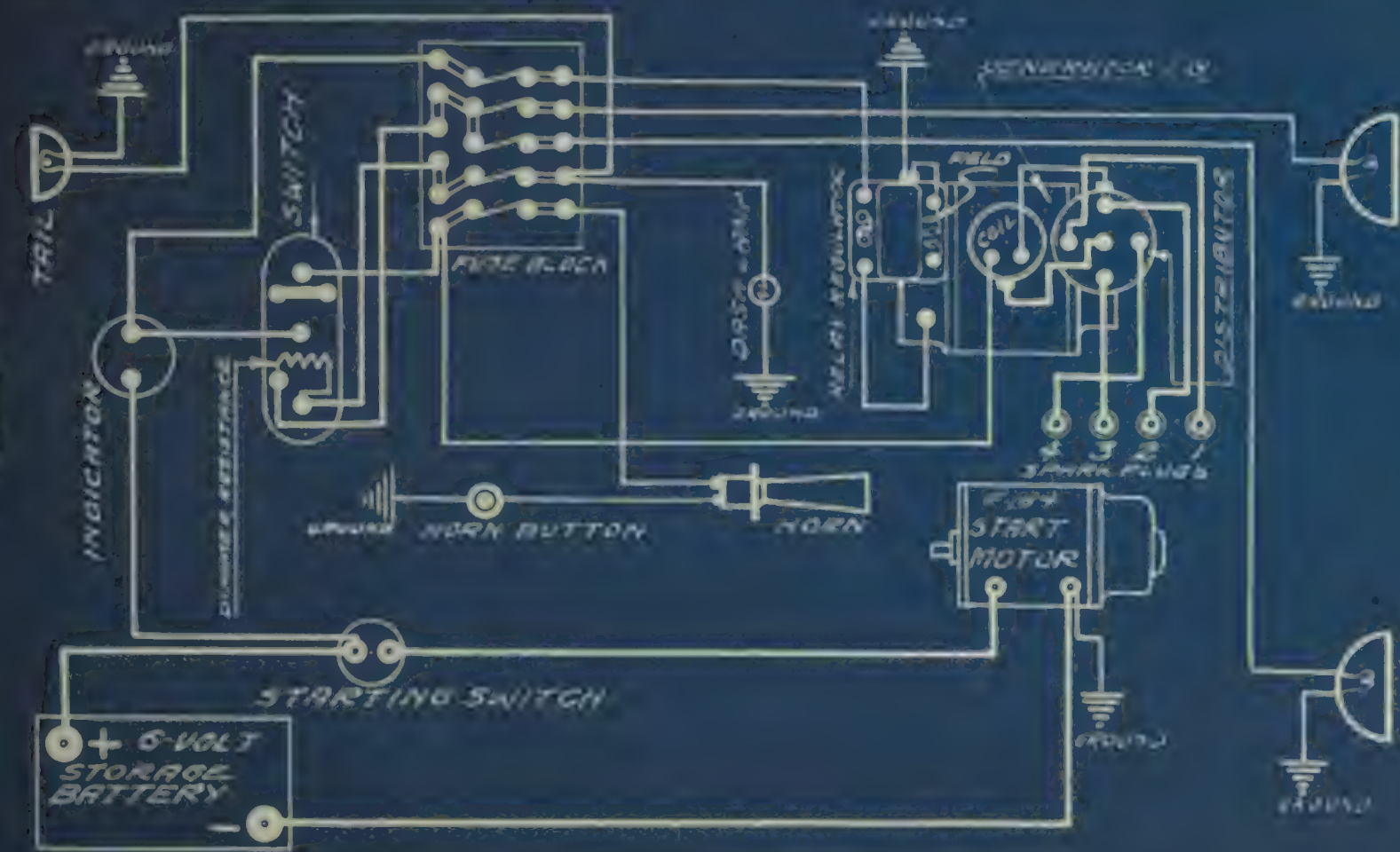


# INTER-STATE 1915-16-17-18 MODELS T & TR

## REMY SYSTEM

APPROXIMATE INST BK

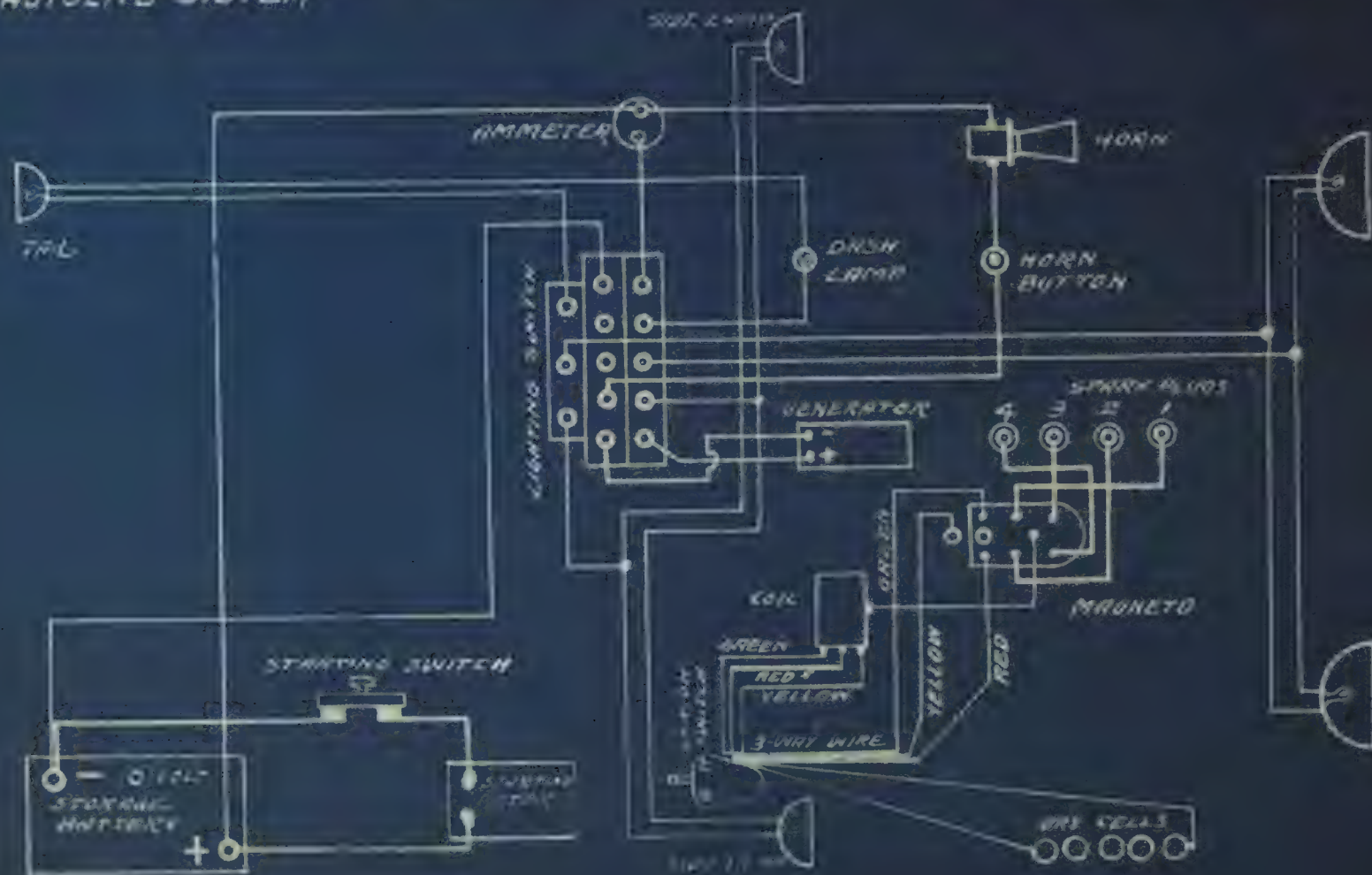
AUTOMOTIVE WIRING CO. INCORPORATED U.S.A.



# JACKSON 1913 MODEL 43

## AUTOLITE SYSTEM

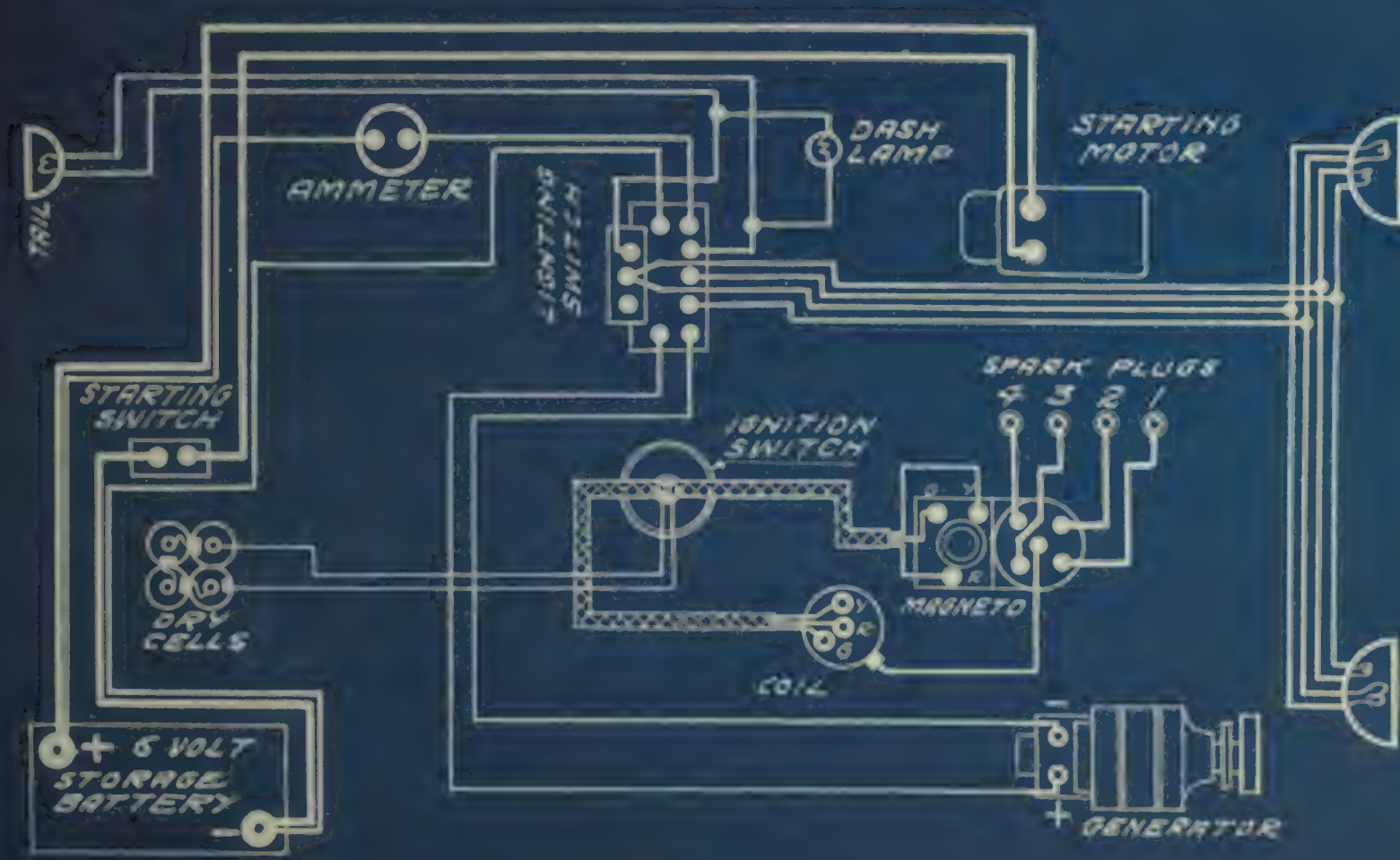
FROM MFRS BP 40075





JACKSON 1914-1915 46  
NORTH-EAST SYSTEM

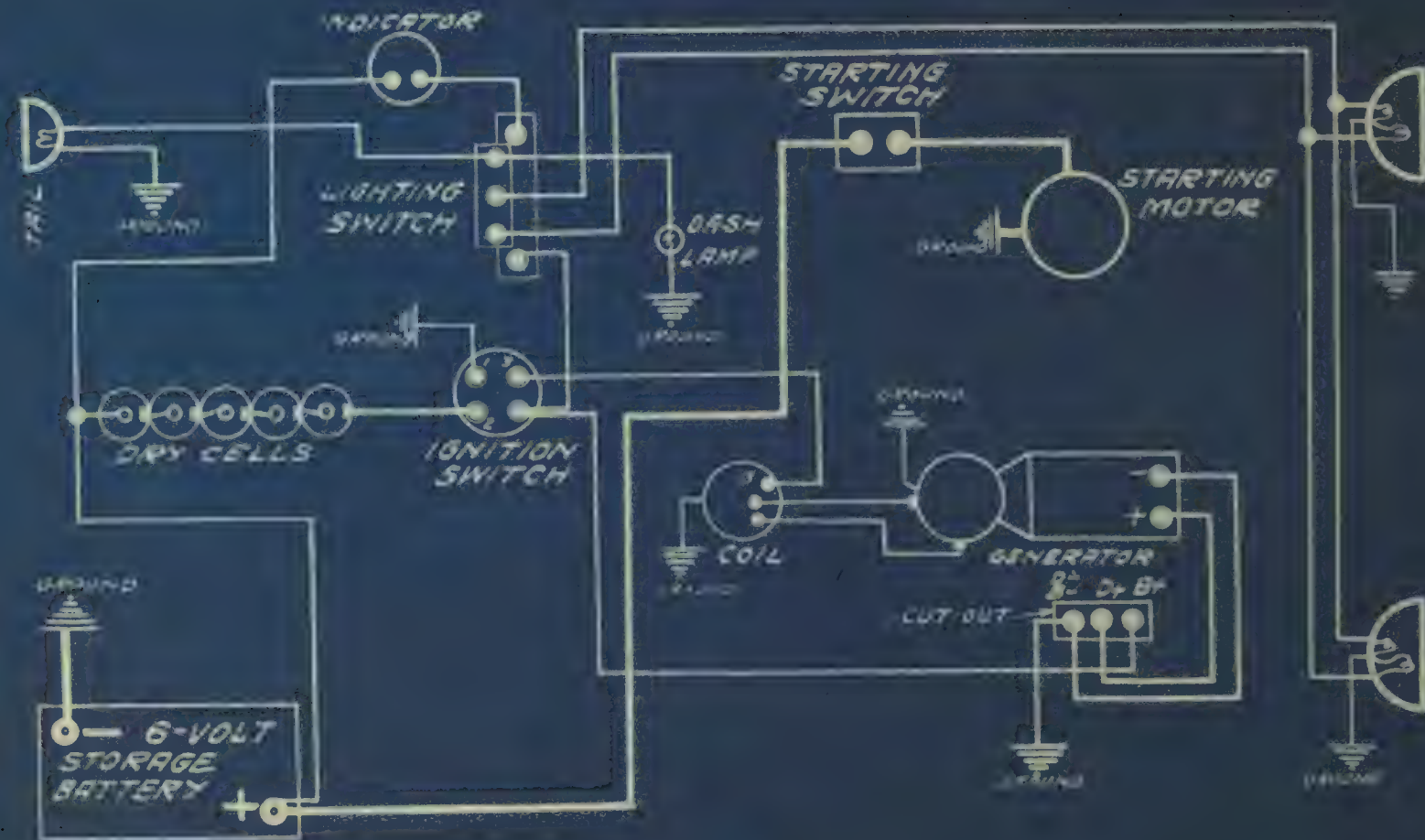
FROM MERS. 3A



# JACKSON 1915-MODEL 46

## RUTOLITE SYSTEM

FROM MERS BLUE PRINT

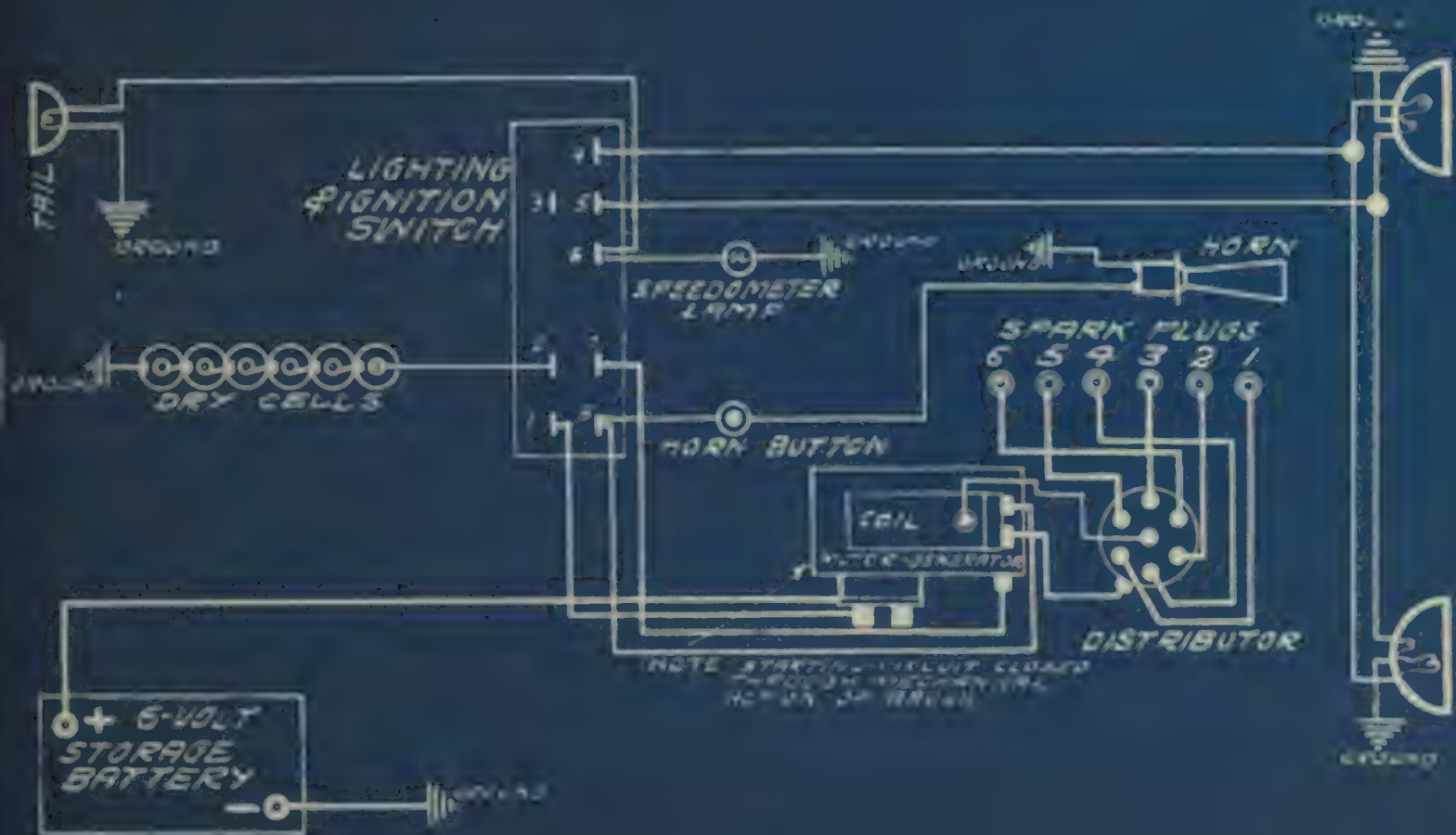


# JACKSON 1915 48 & 6-40

DELCO SYSTEM

FROM HERE BLUEPRINT

AUTOMOTIVE PUBLISHING CO.

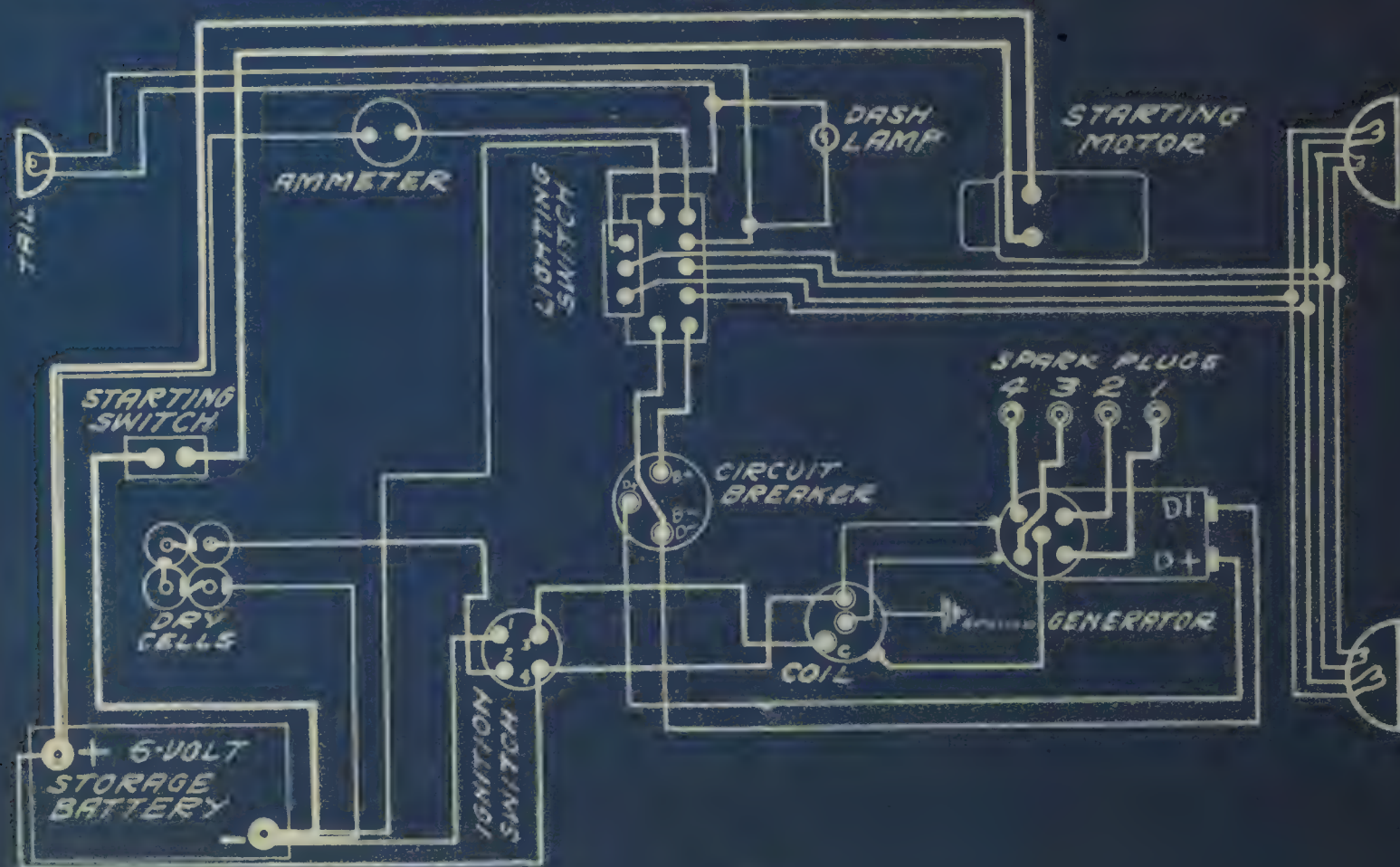




# JACKSON 1915-1916 44

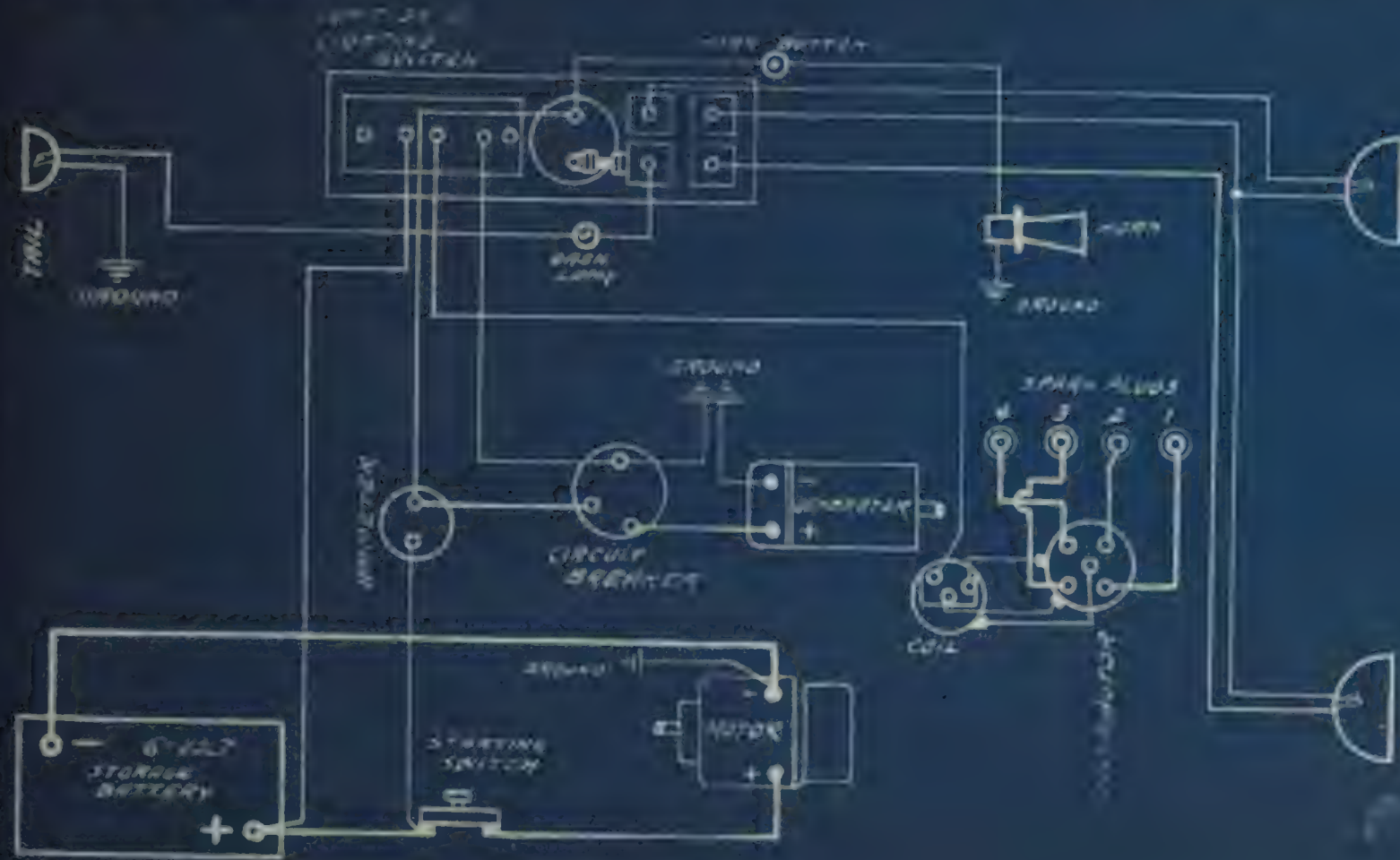
NORTH-EAST SYSTEM

ENGINEERS BLUE PRINT



# JACKSON 1916 MODEL 34 AUTOLITE SYSTEM

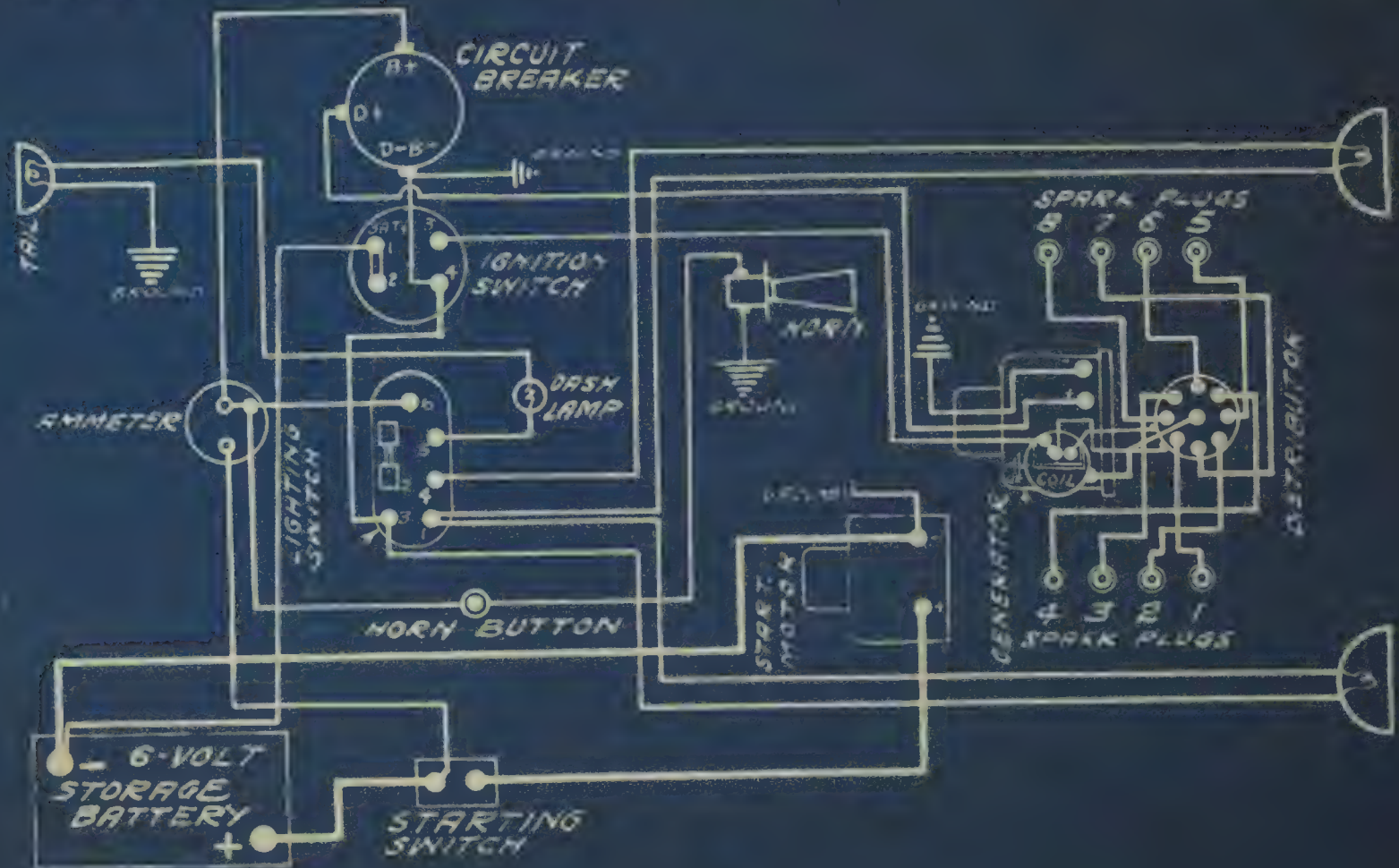
FROM PARTS BR



# JACKSON 1916 MODEL 68

## RUTOLITE SYSTEM

FROM MFRS. DP 68259



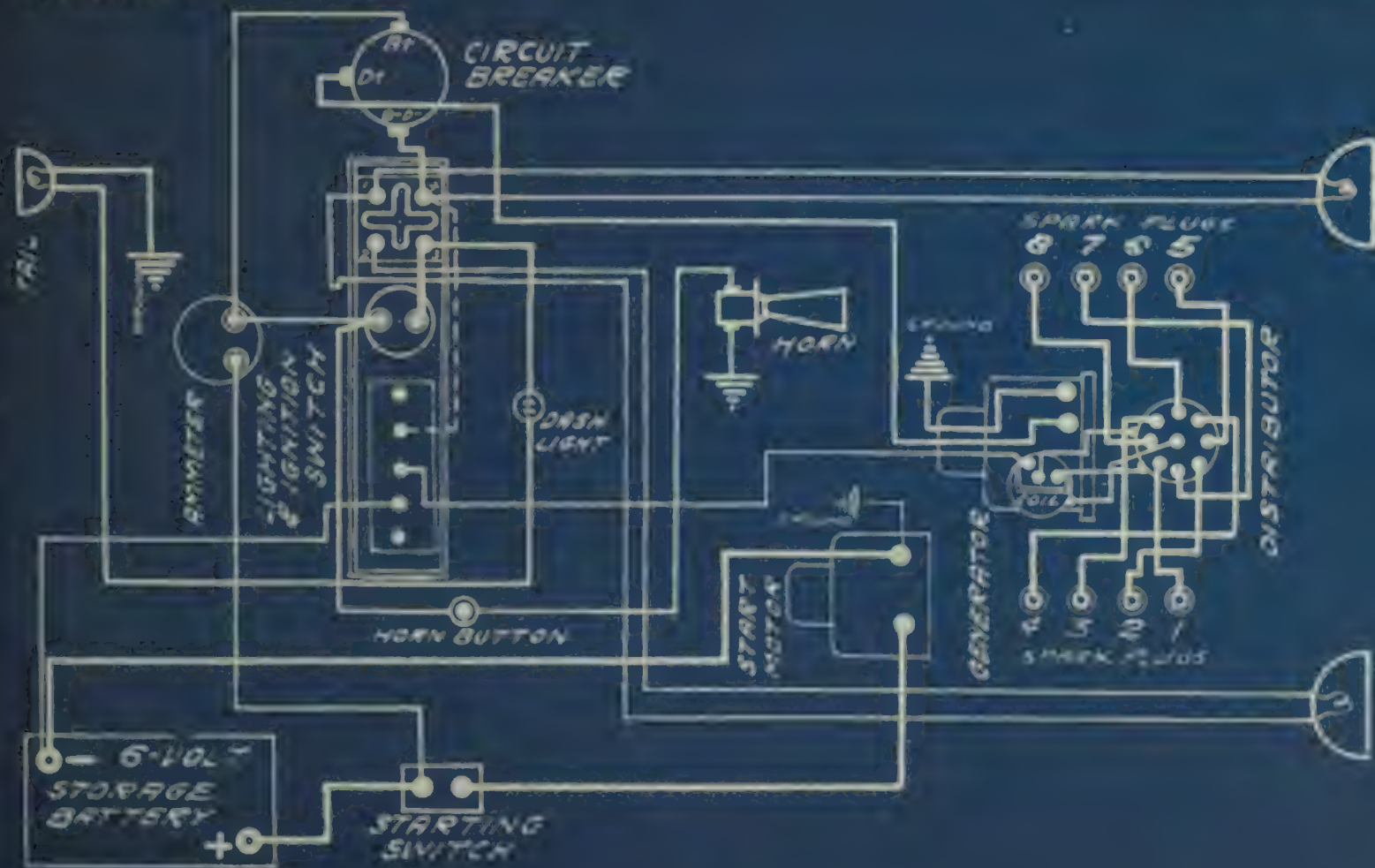
AUTOMOTIVE FURNISHING CO.  
CHICAGO, ILL.



# JACKSON 1916 348

## AUTOLITE SYSTEM

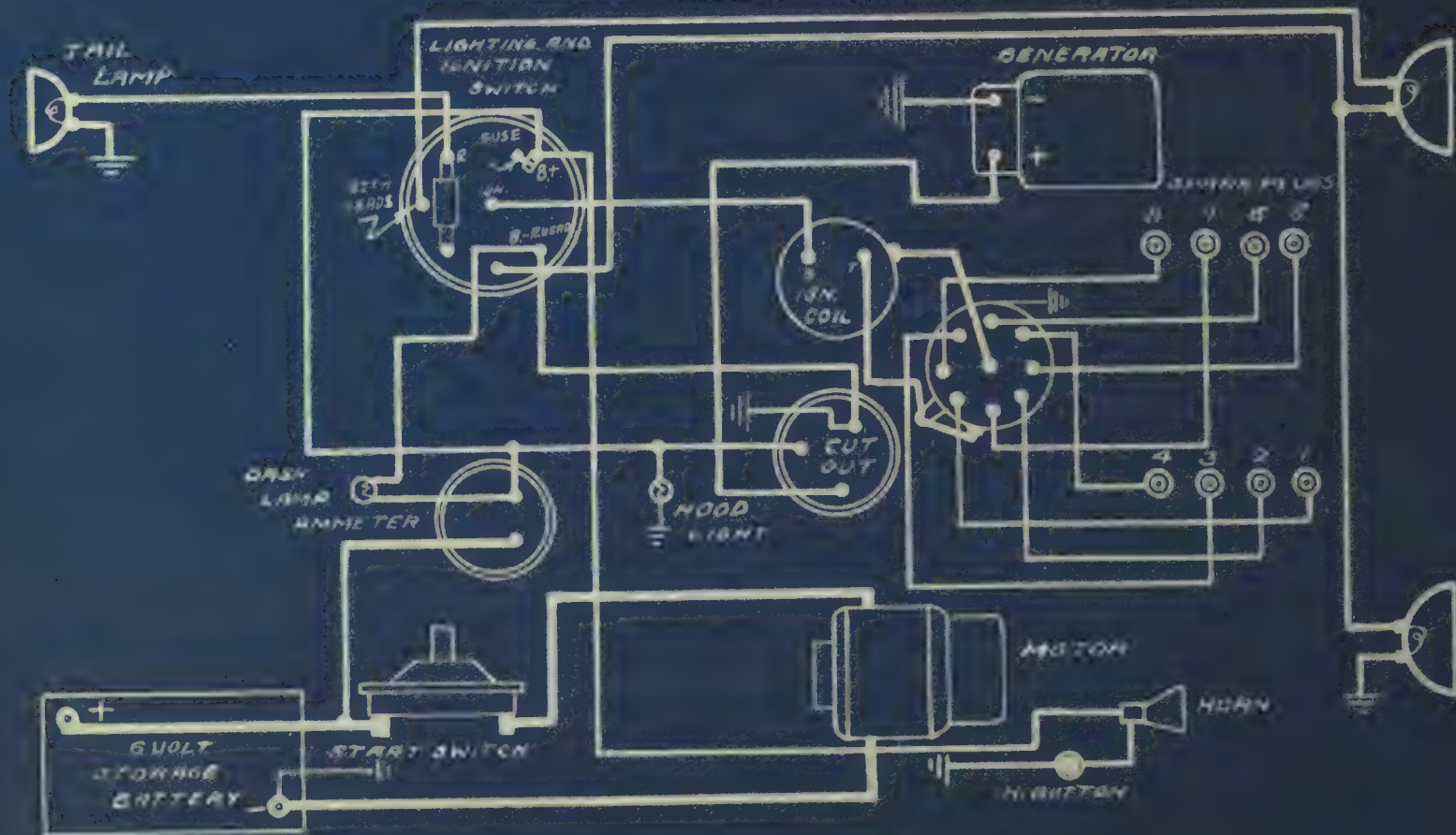
FROM MPV. BA 34259



# JACKSON 1917-18. MODEL 349

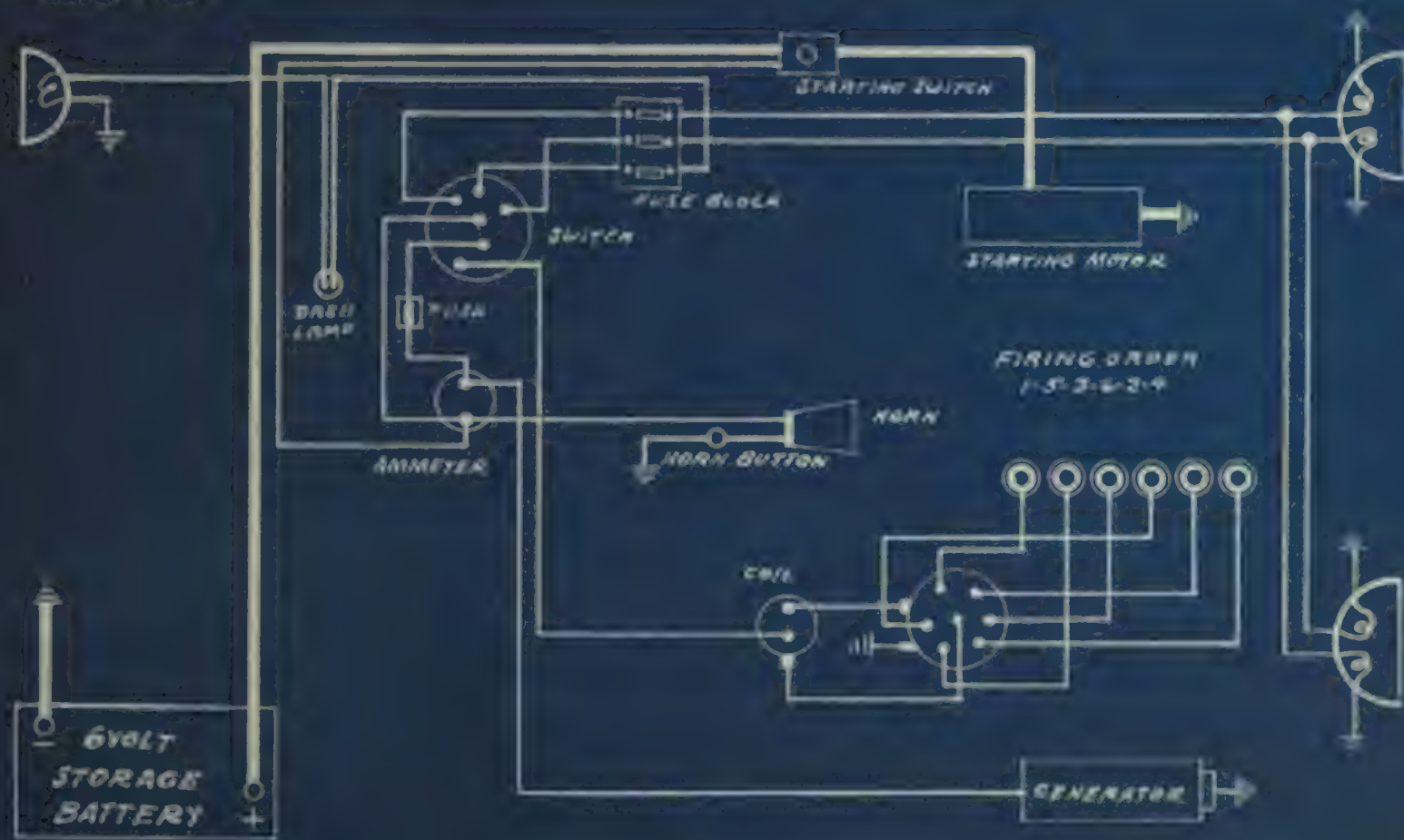
## AUTOLITE SYSTEM CONNECTION

FRONT VIEW



**JACKSON '6-38' 1920**  
**AUTO-LITE SYSTEM**  
**REMY IGN.**

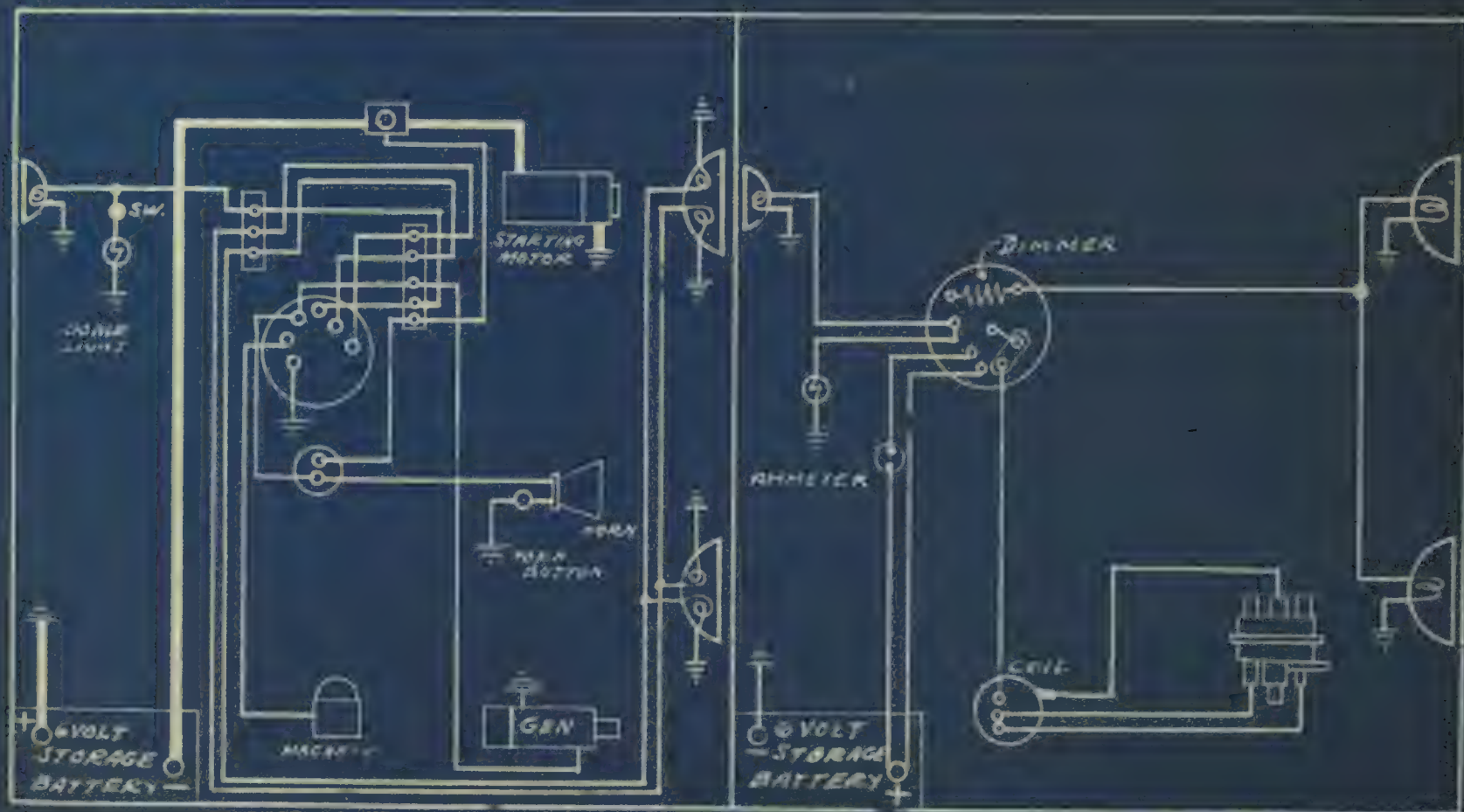
FROM H.P.E.S. DP/234-13





**JACKSON 4WHEEL DRIVE TRUCK**  
 DYNETO SYSTEM  
 EISEMANN IGN.  
 FROM MEKLS B/P 10/11/19

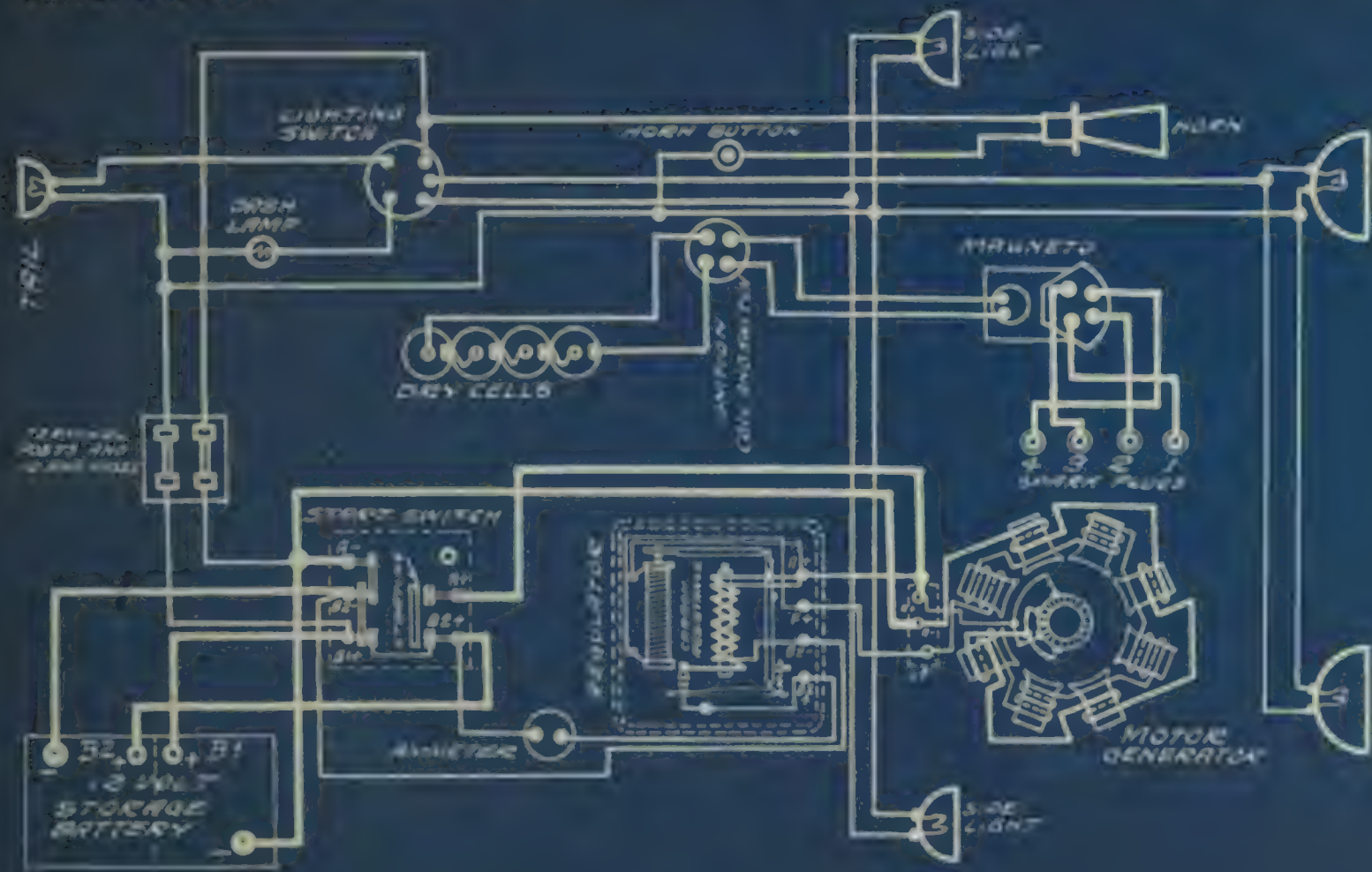
**SKELTON '35 1920** FROM MEKLS B/P  
 CONN IGN.



# JEFFERY 1915 FOUR

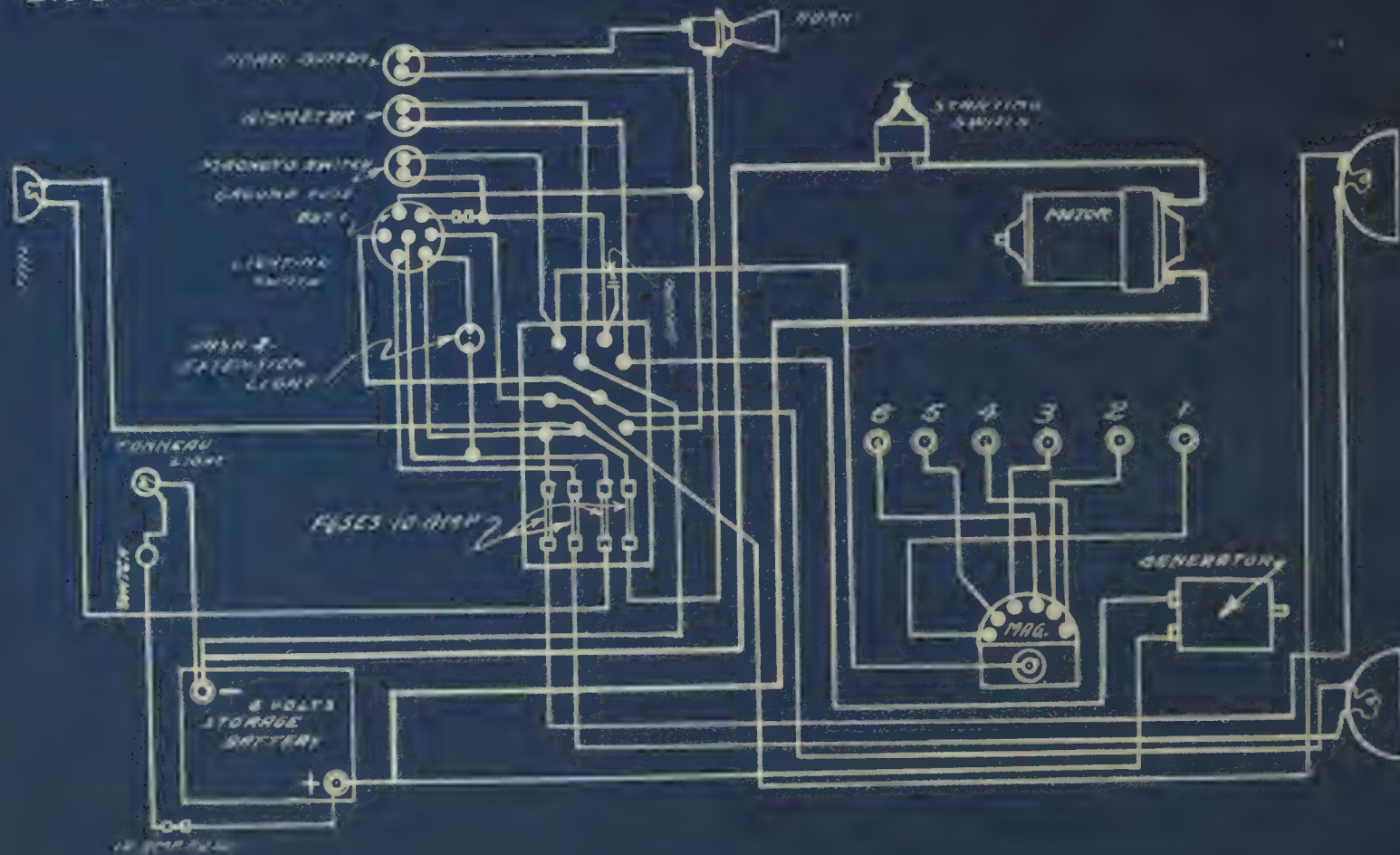
U.S.C. SYSTEM

FROM JEFFERY INST. Bk.



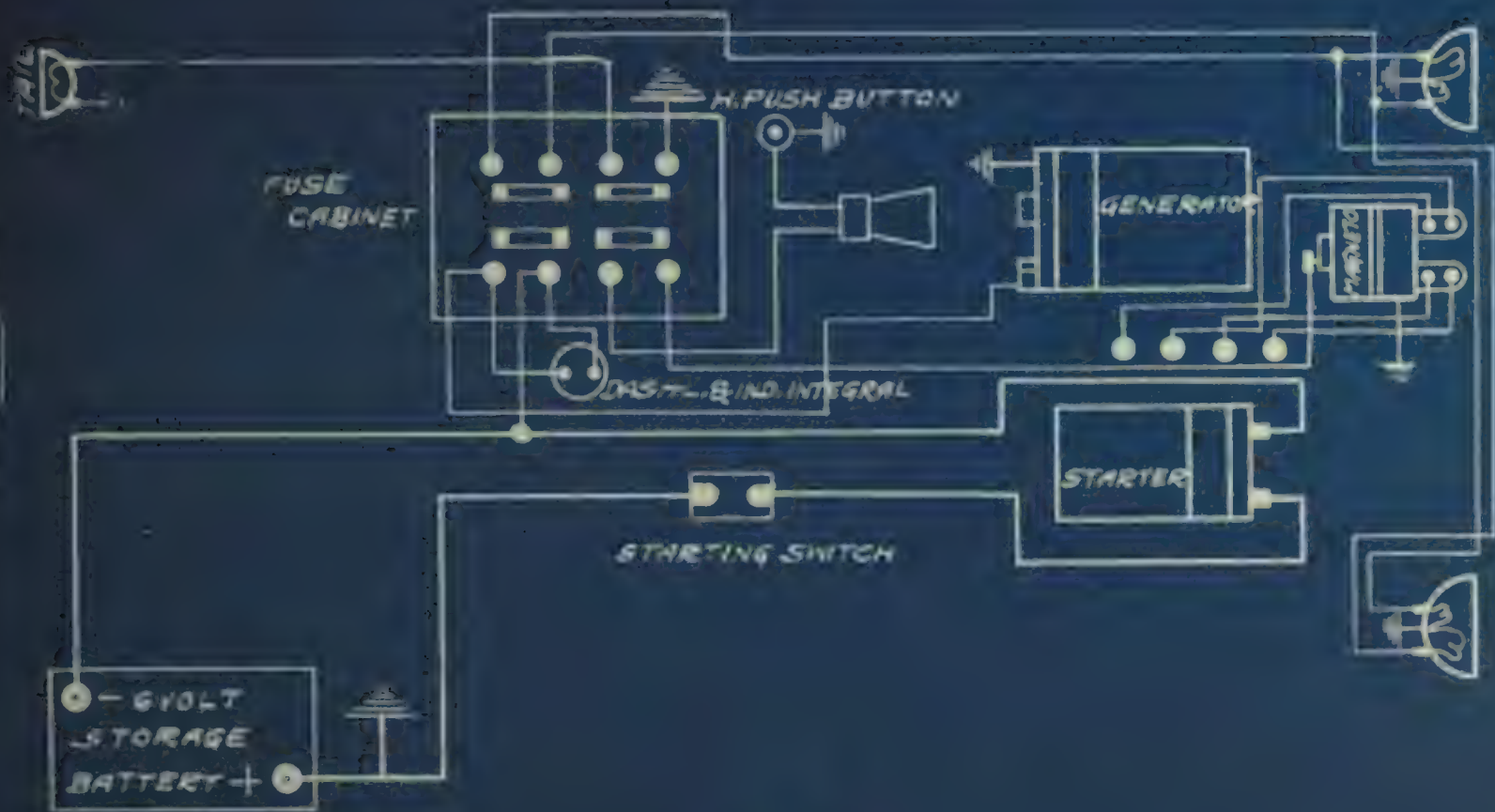
# JEFFERY 1915 CHESTERFIELD 6 BIVUR SYSTEM

FRONT BR C-607



AUTOMOTIVE EQUIPMENT CO.  
 CHICAGO, ILL.

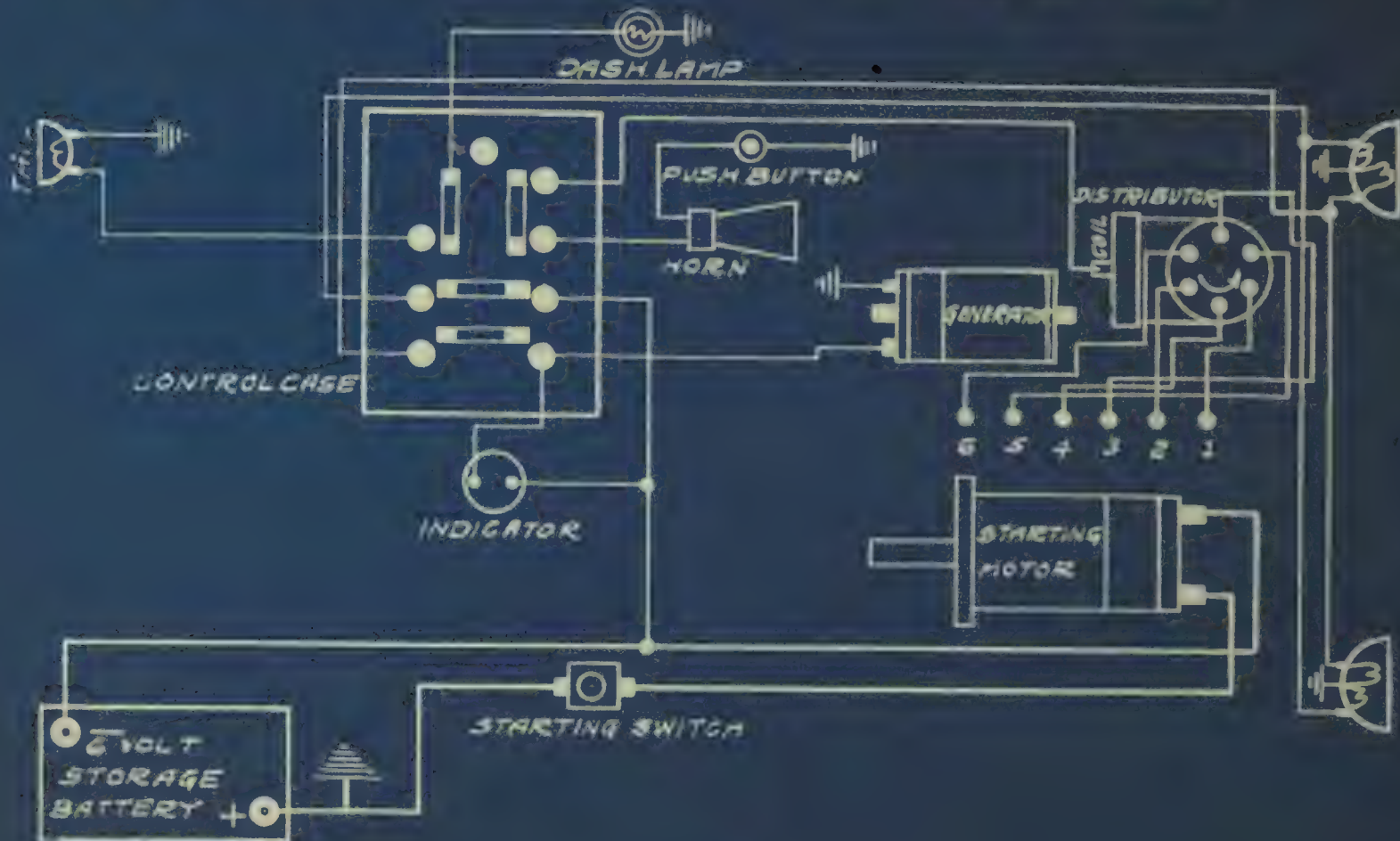




# JEFFERY 1917 671

BIGUR SYSTEM

FROM MFGS. B/PM-5543

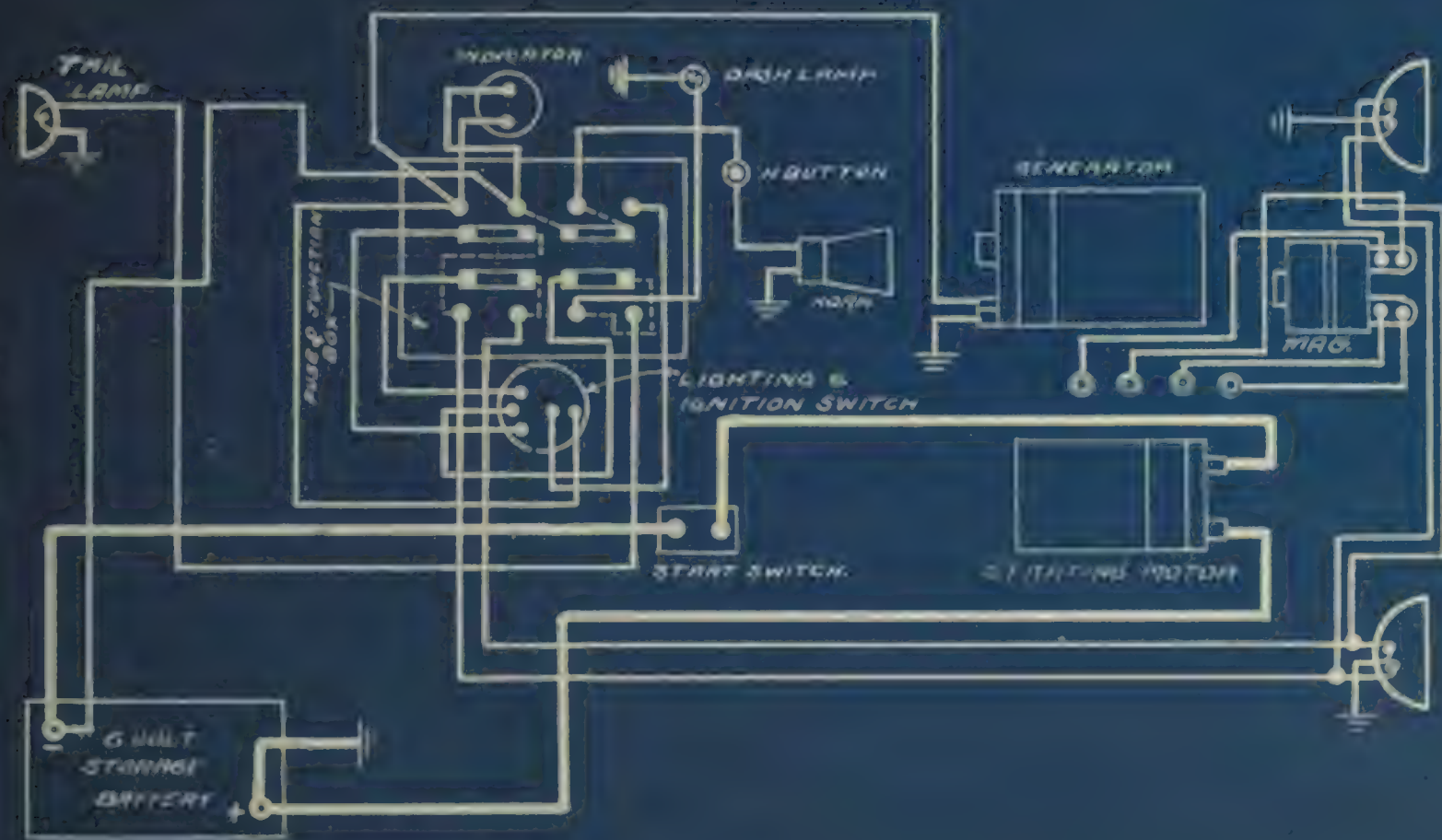


# JEFFERY RAPID SERVICE TRUCK

BLMR SYSTEM

MODEL 1016

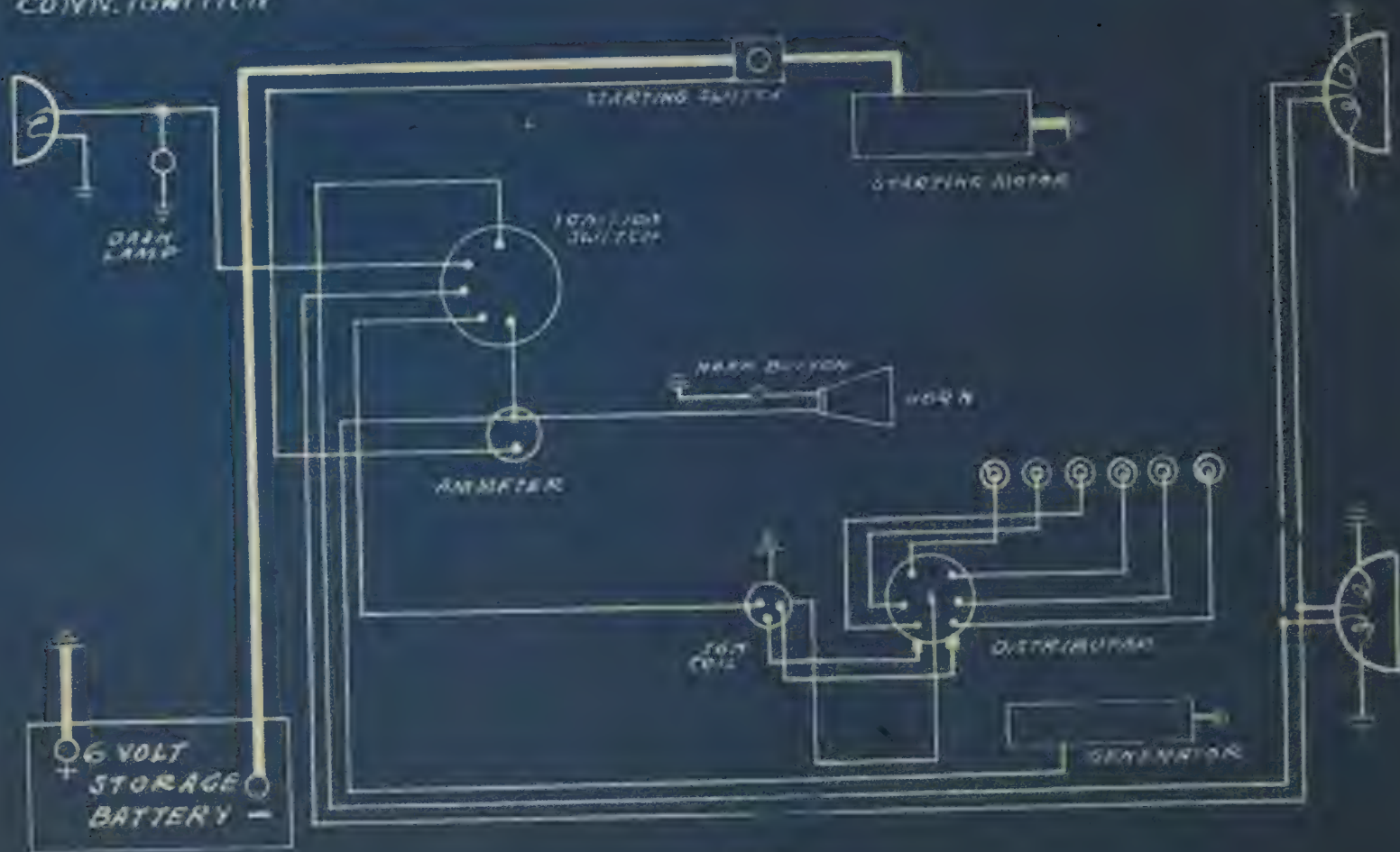
FROM MORGAN





# JONES 1919-1920 AUTO-LITE SYSTEM CONN. IGNITION

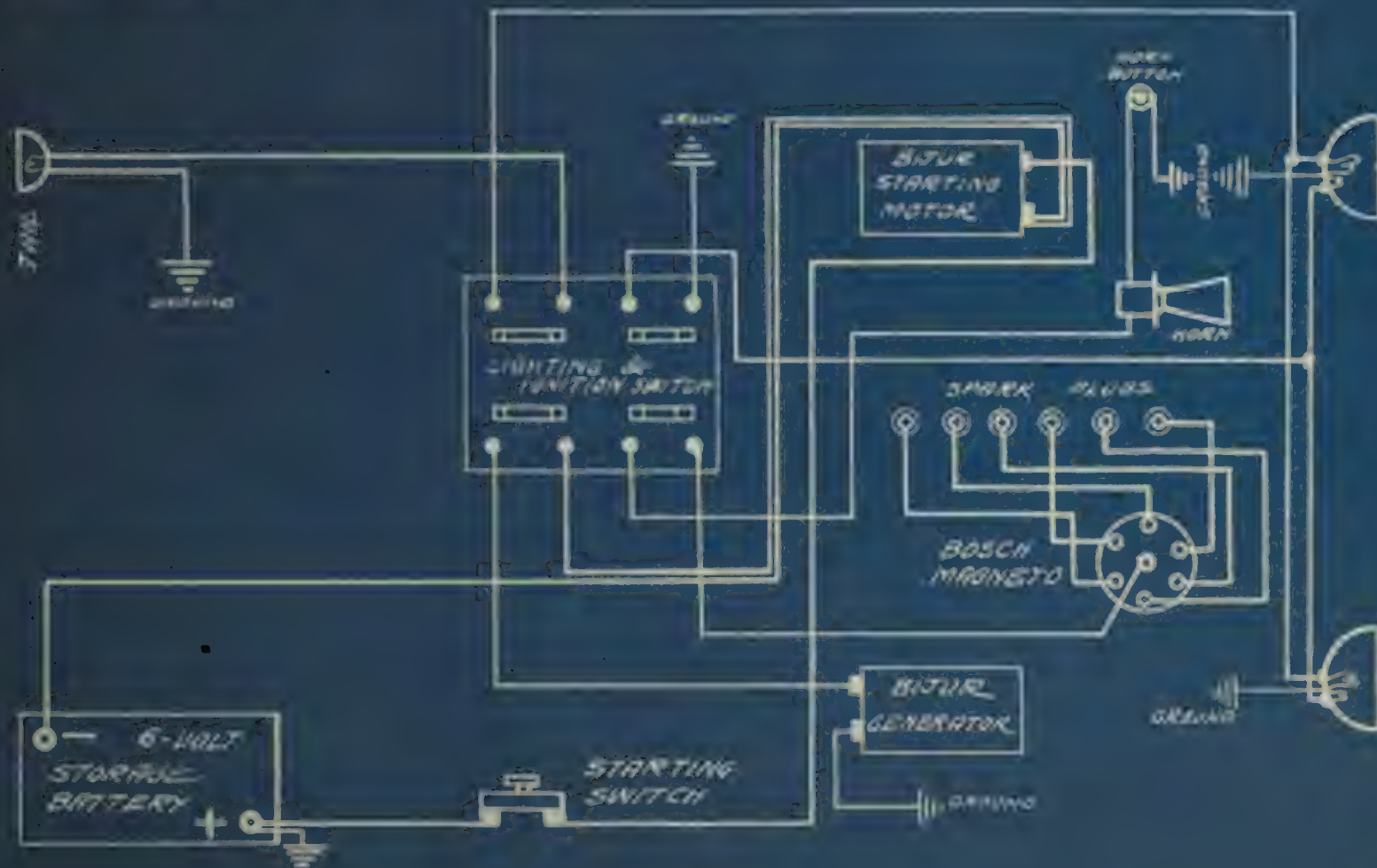
FROM MEX. SP. 940-P



# JORDAN 1917 "B" & 1916 "60"

## BIGUR SYSTEM

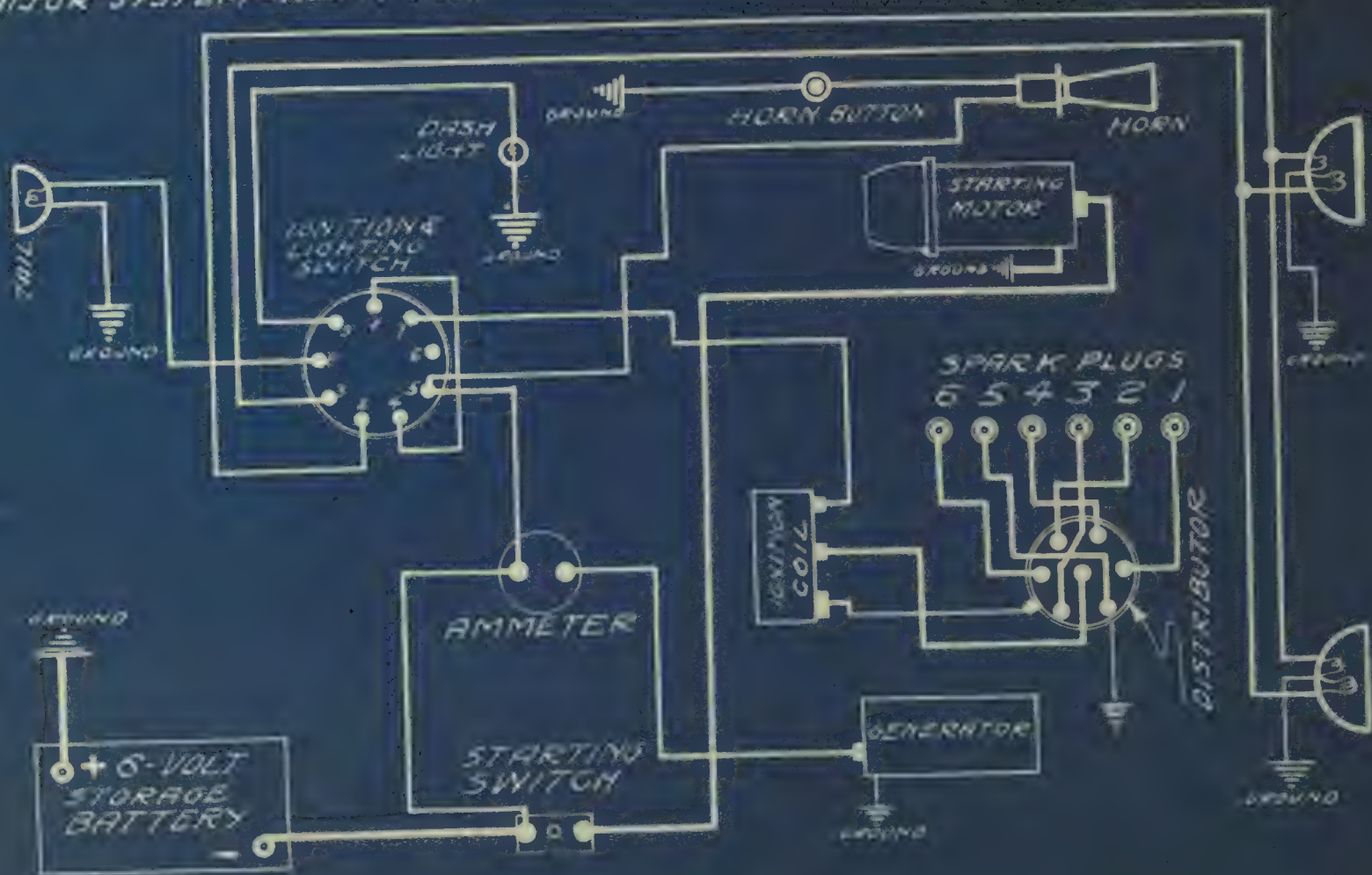
FROM MFRS. 089357



# JORDAN 1918-1919 BIBUR SYSTEM-REMY IGM.

'60"

FROM HERSBY C-354

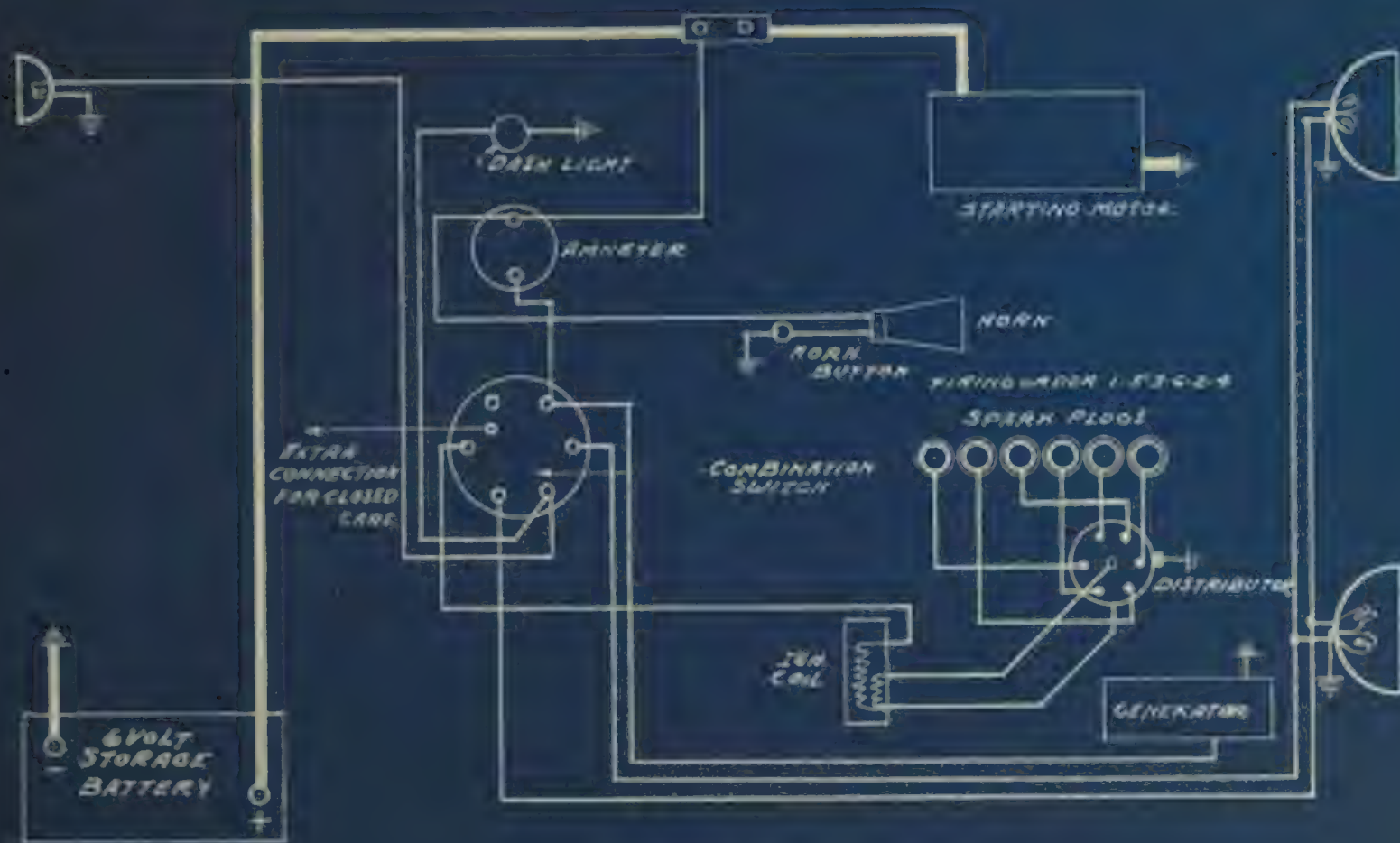


Automotive Publishing Co.  
Chicago, Ill.



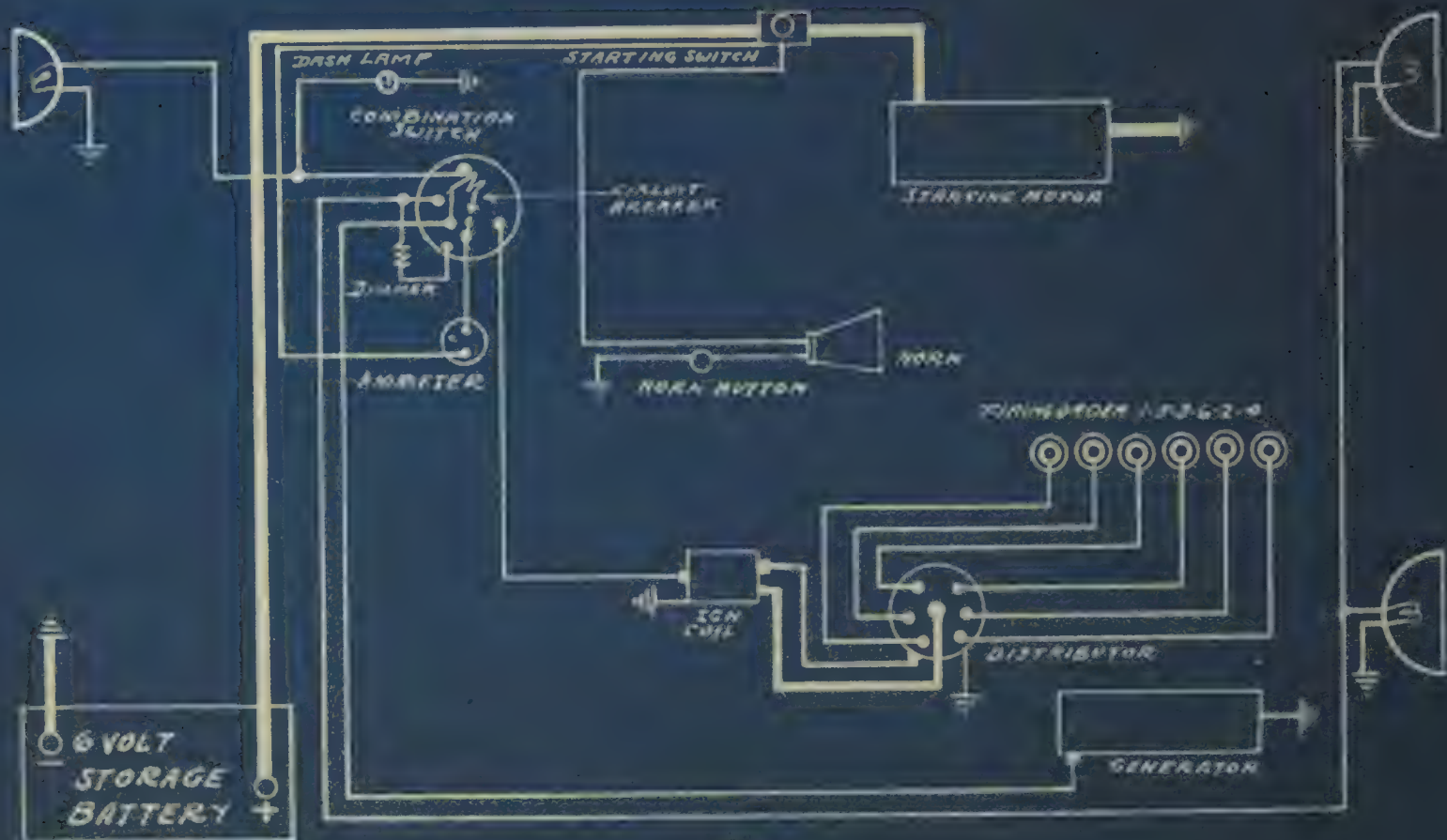
# JORDAN 1920 M DELCO SYSTEM

FROM N.P.R.I. B.P.M. -368



# KANKAKEE 1919 DELCO SYSTEM

FROM MFRS INST BOOK

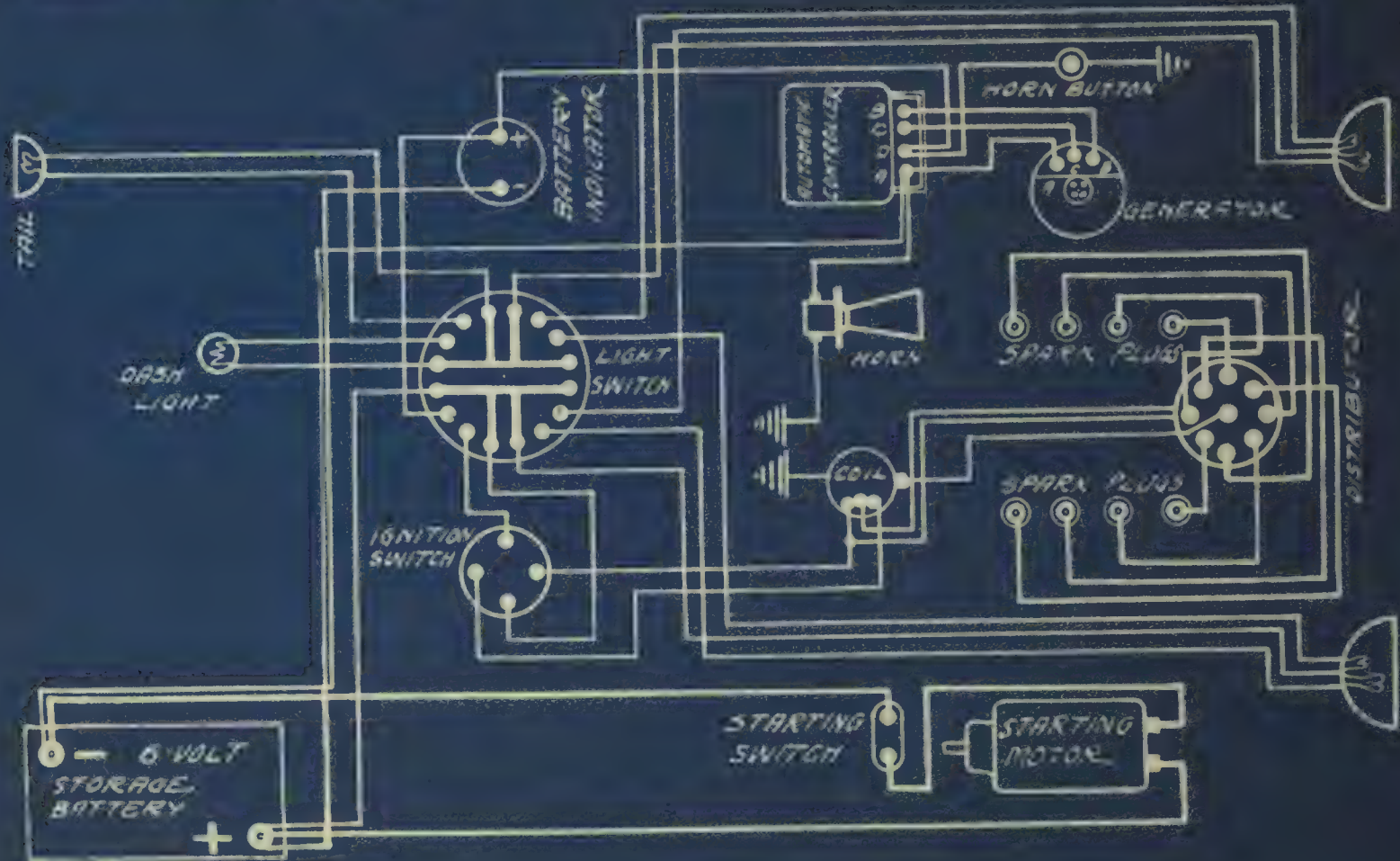


Automotive Technology Center  
10000 Highway 90, S.W.  
Tomball, TX 77480-1000  
Tel: 281/291-1000  
Fax: 281/291-1001  
www.automotive-technology.com



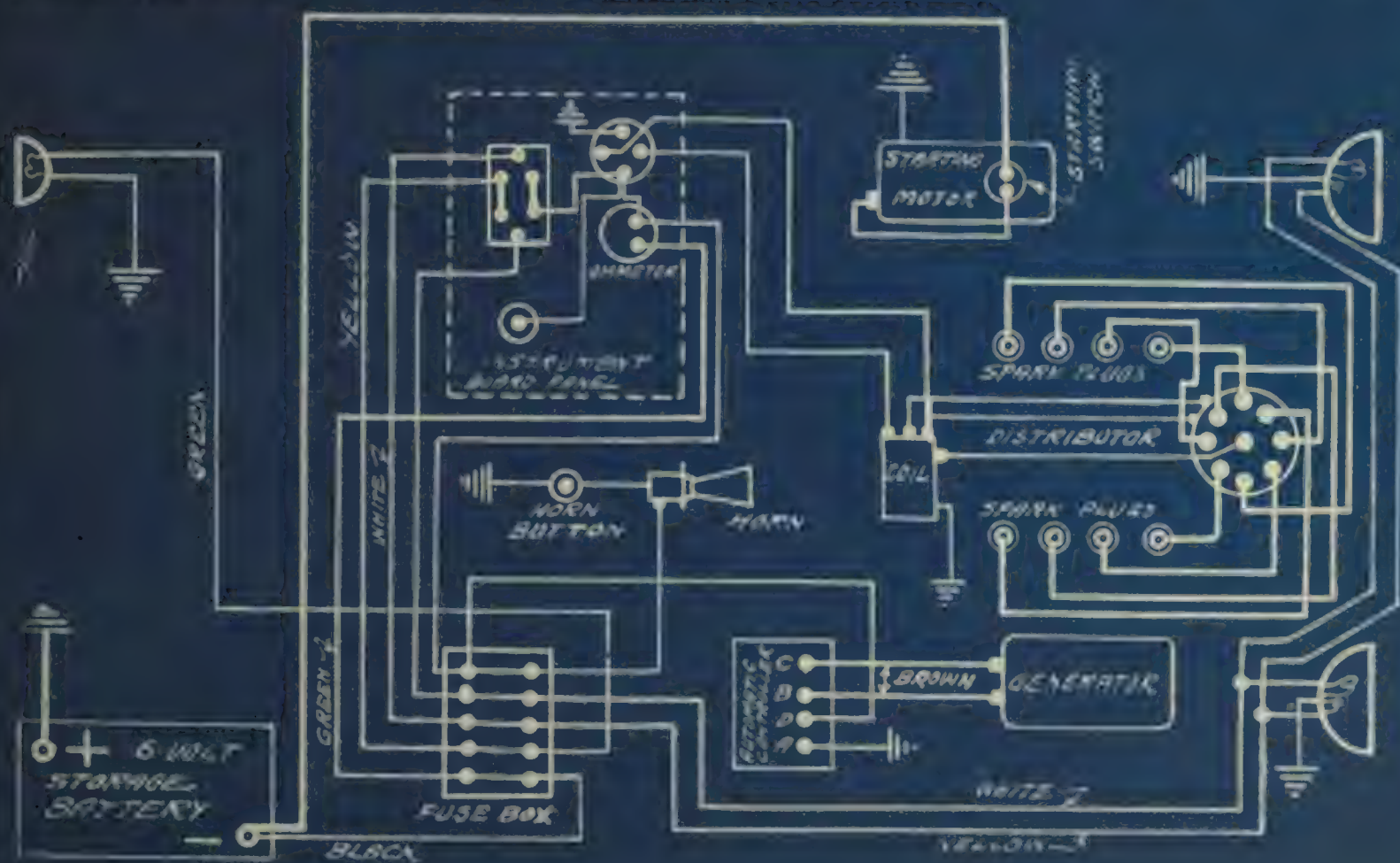
# KING 1915 "8" WARD-LEONARD SYSTEM

FROM MFRS. B.F. E-4-197



# KING 1916 WARD-LEONARD SYSTEM

FROM MARS. BP-E-4-222





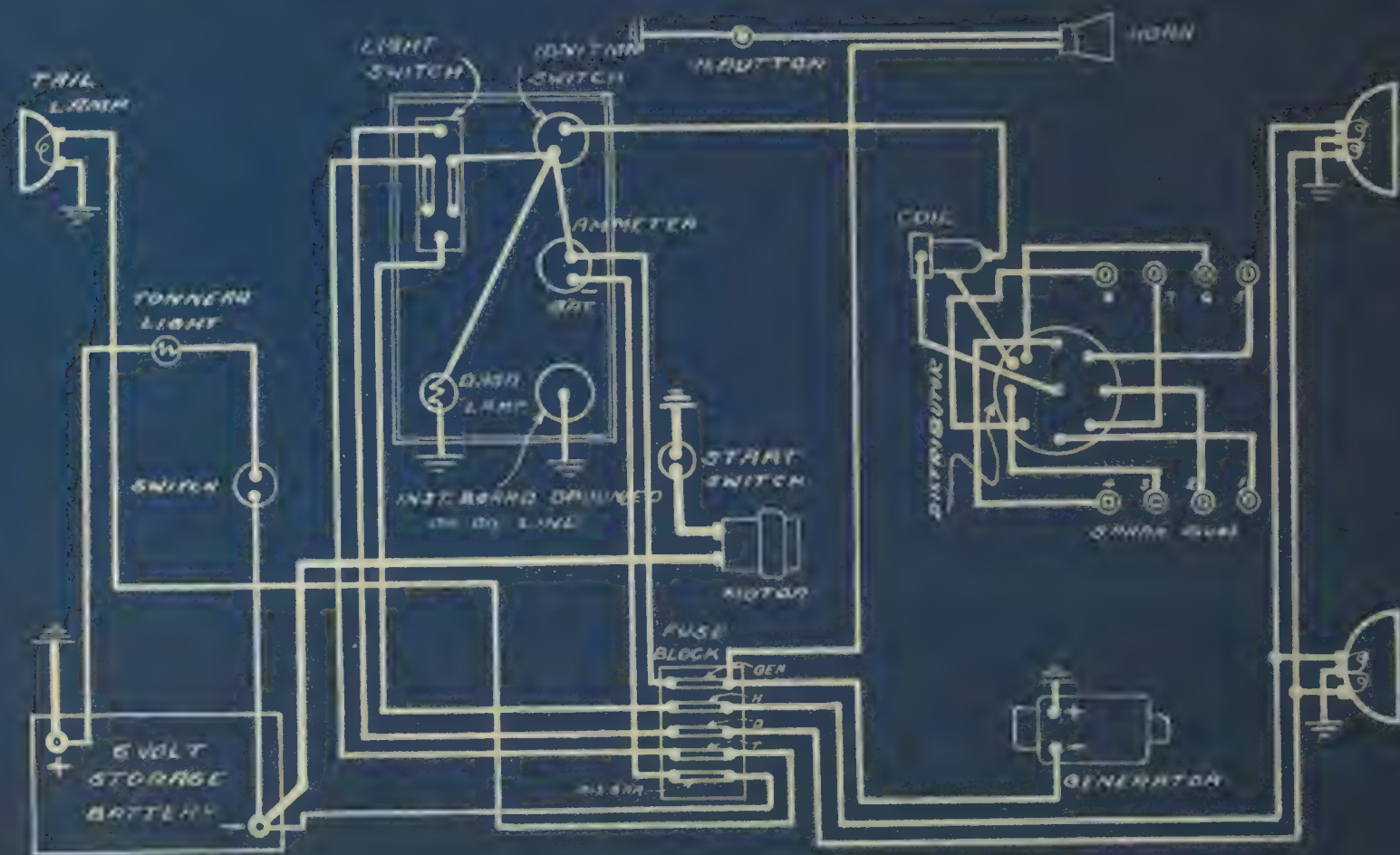
KING MODEL EE - 1917-1918

HARD LEONARD SYSTEM

MODEL G-1919, H-1920

ATWATER NEAT IGNITION

IRON MERS. 8.0

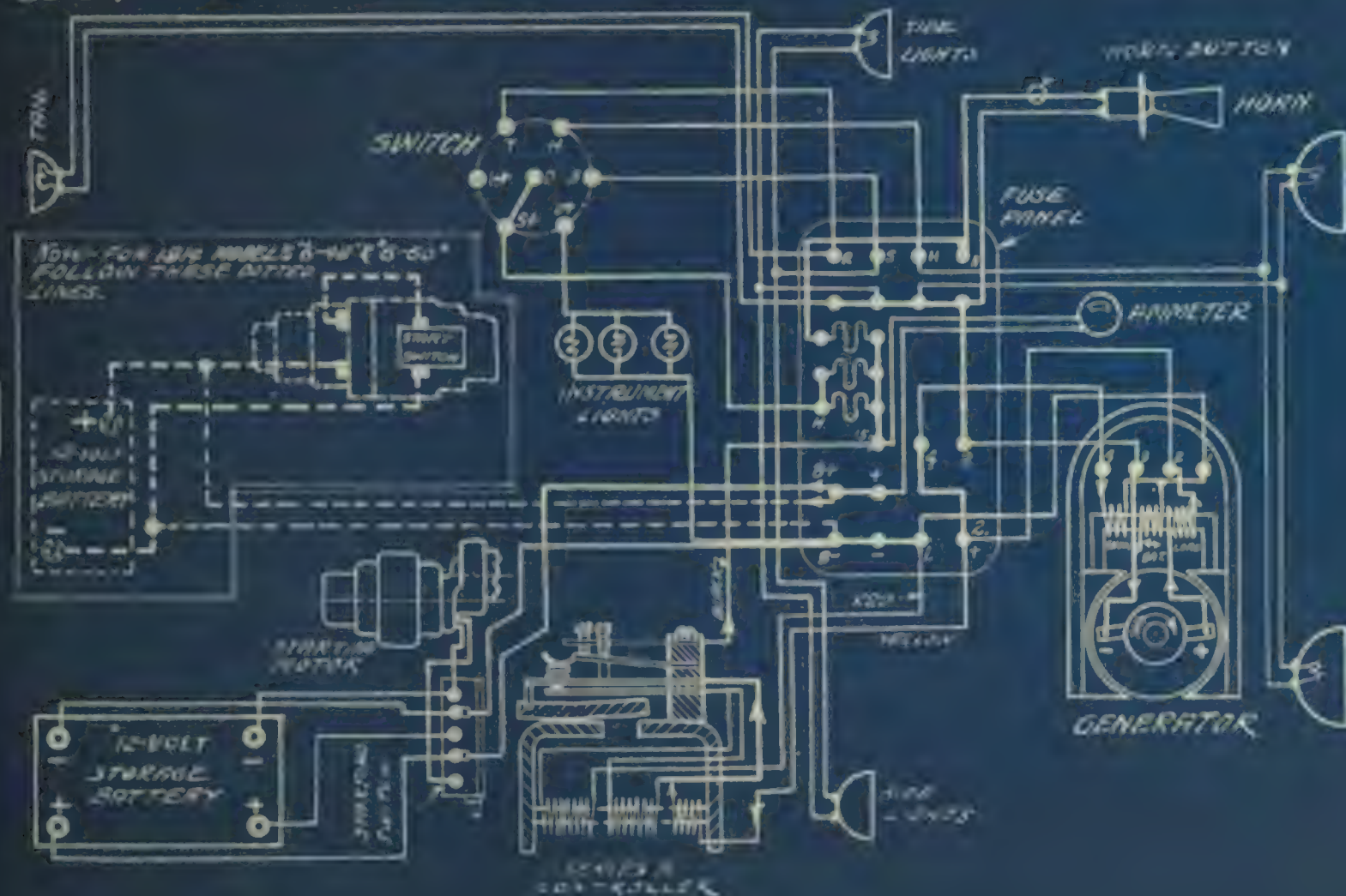




# KISSEL 1913-4-40 & 1914-6-48 & 6-60

## ESTERLINE SYSTEM

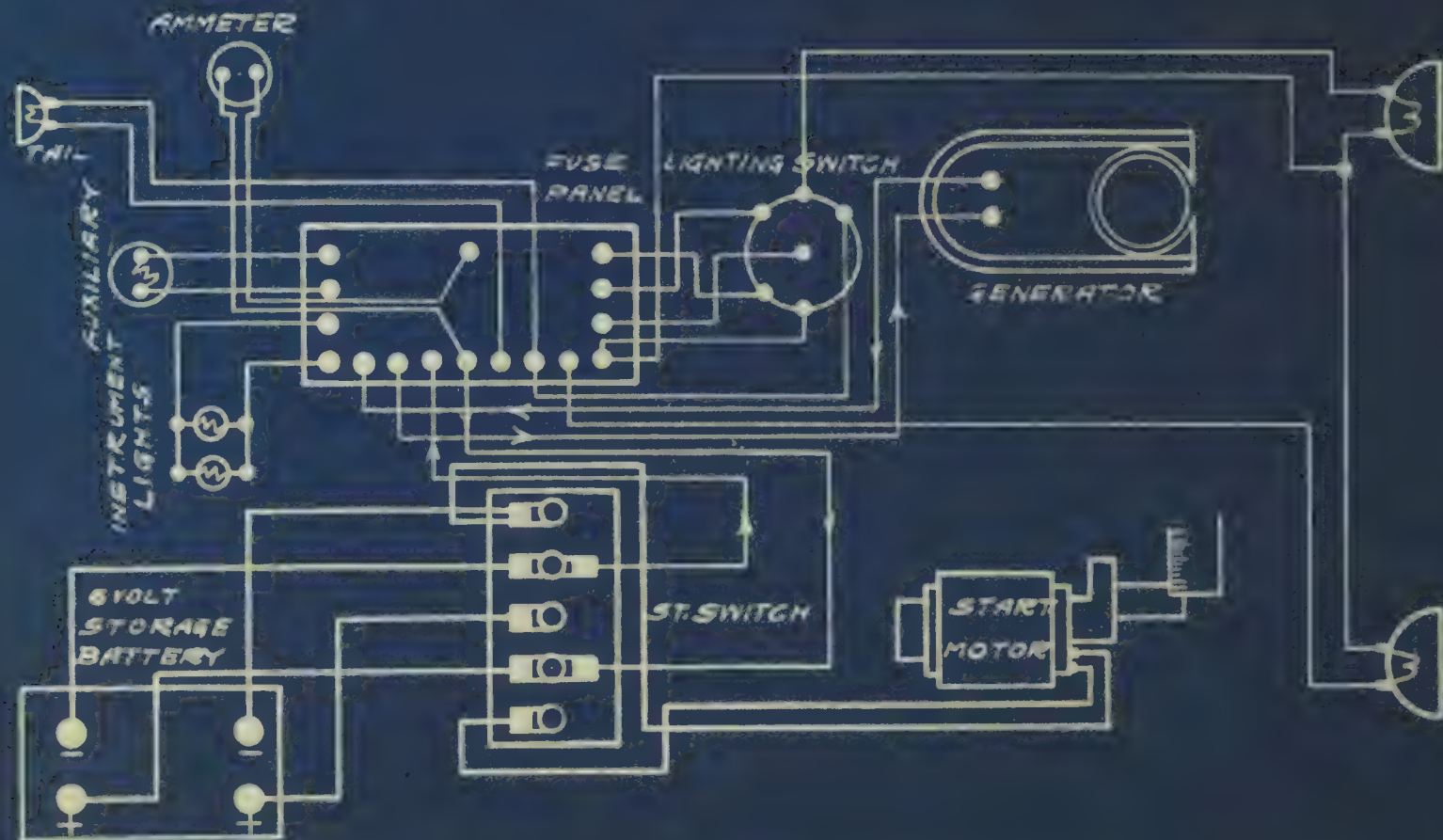
FROM WIRE 2612 & 2648



# KISSEL KAR 1914 4-40

ESTERLINE SYSTEM

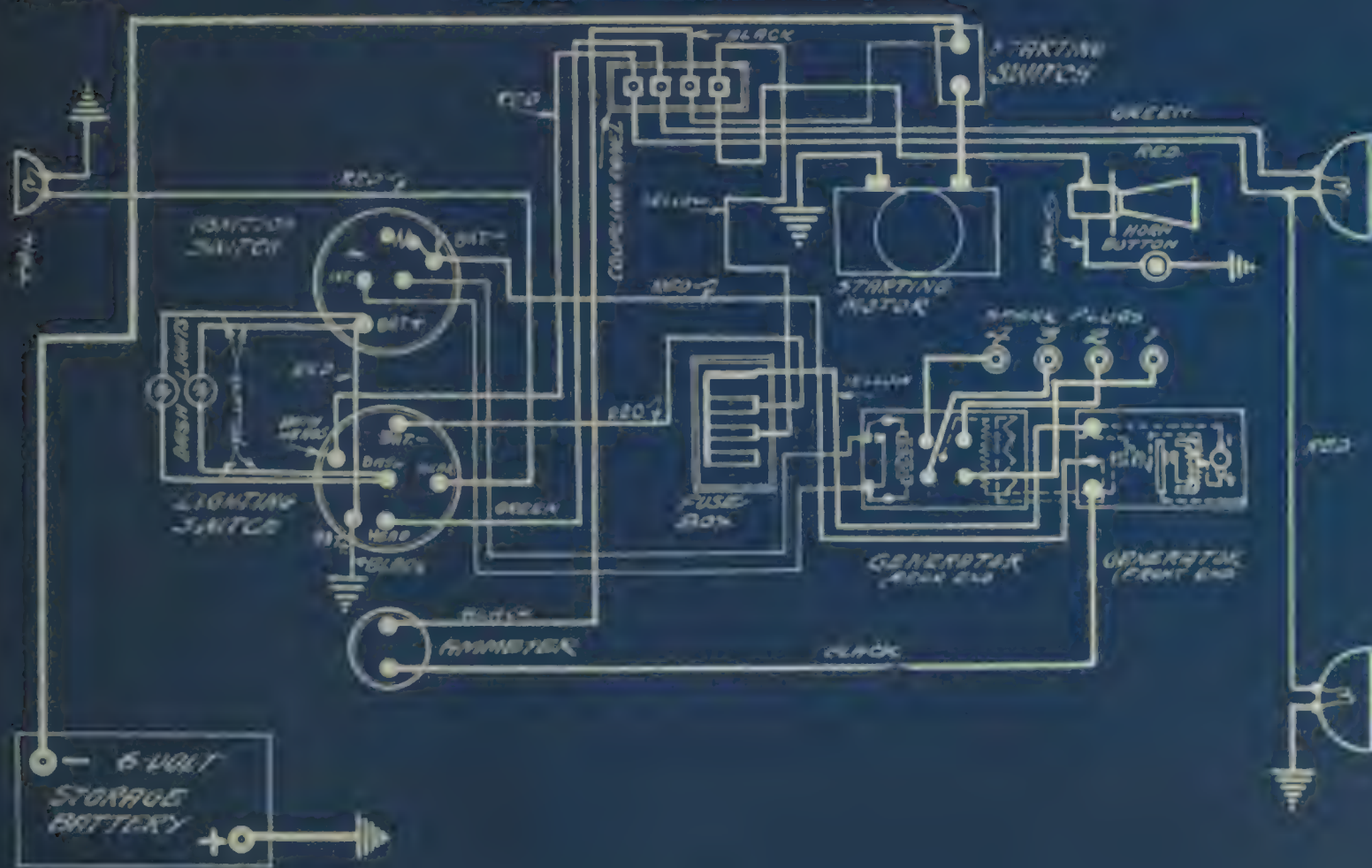
FROM MFGS. B/P 2609



# KISSEL KAR 1915 WESTINGHOUSE SYSTEM

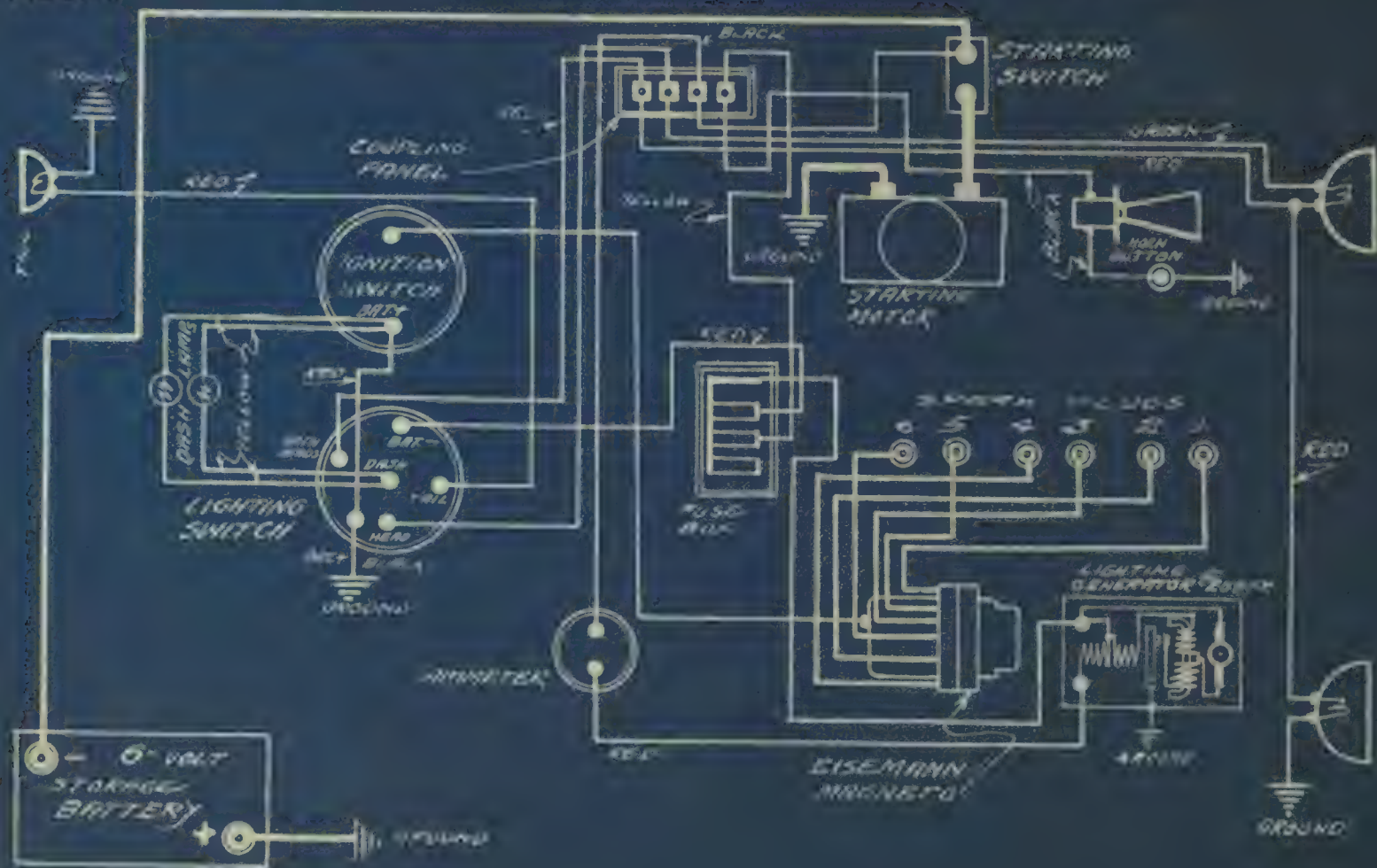
4-36

SPM MERS-2



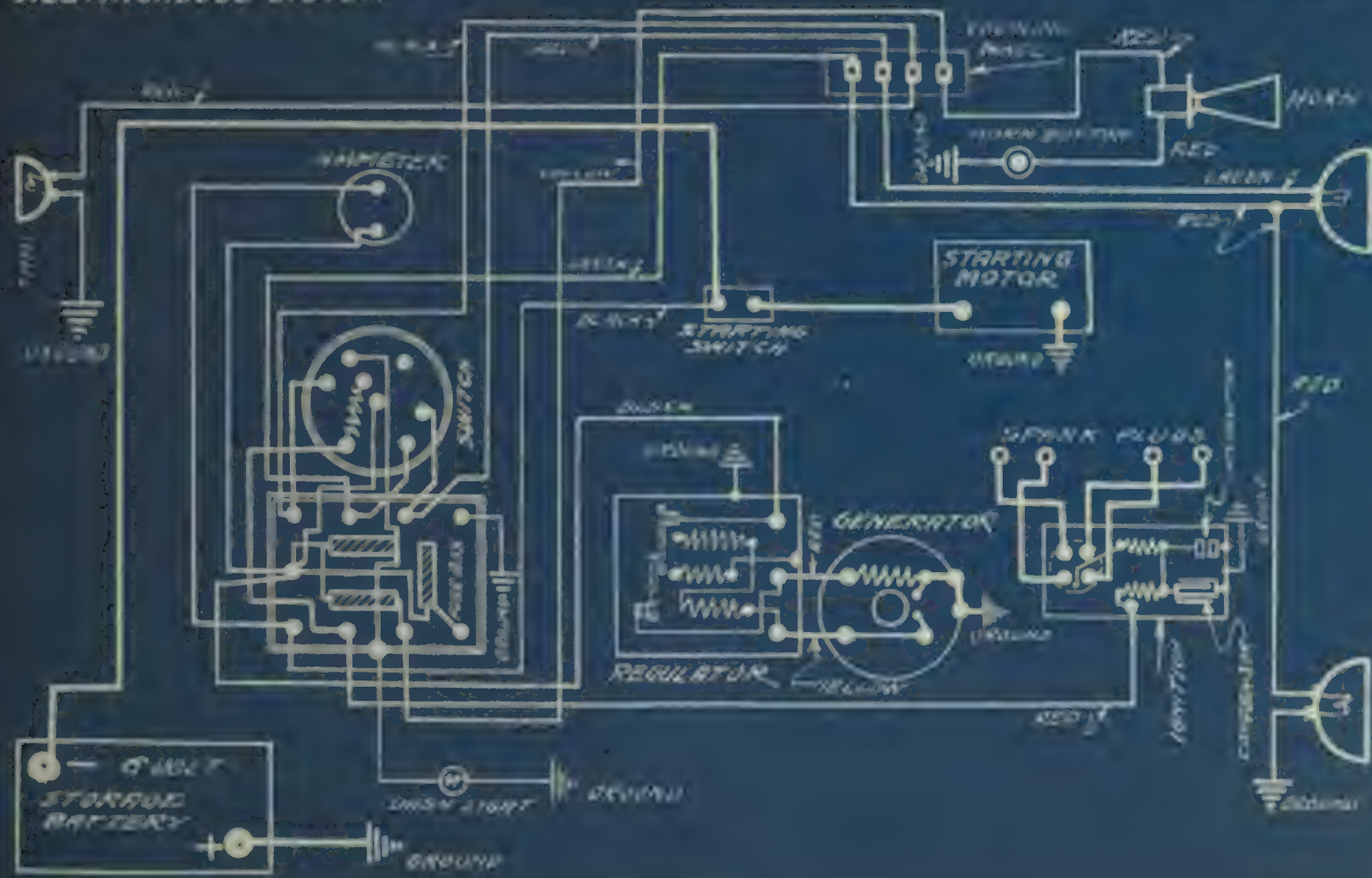


## FROM MEMBERS



# MISSILE CAR 1916 4-32 & 4-36 WESTINGHOUSE SYSTEM

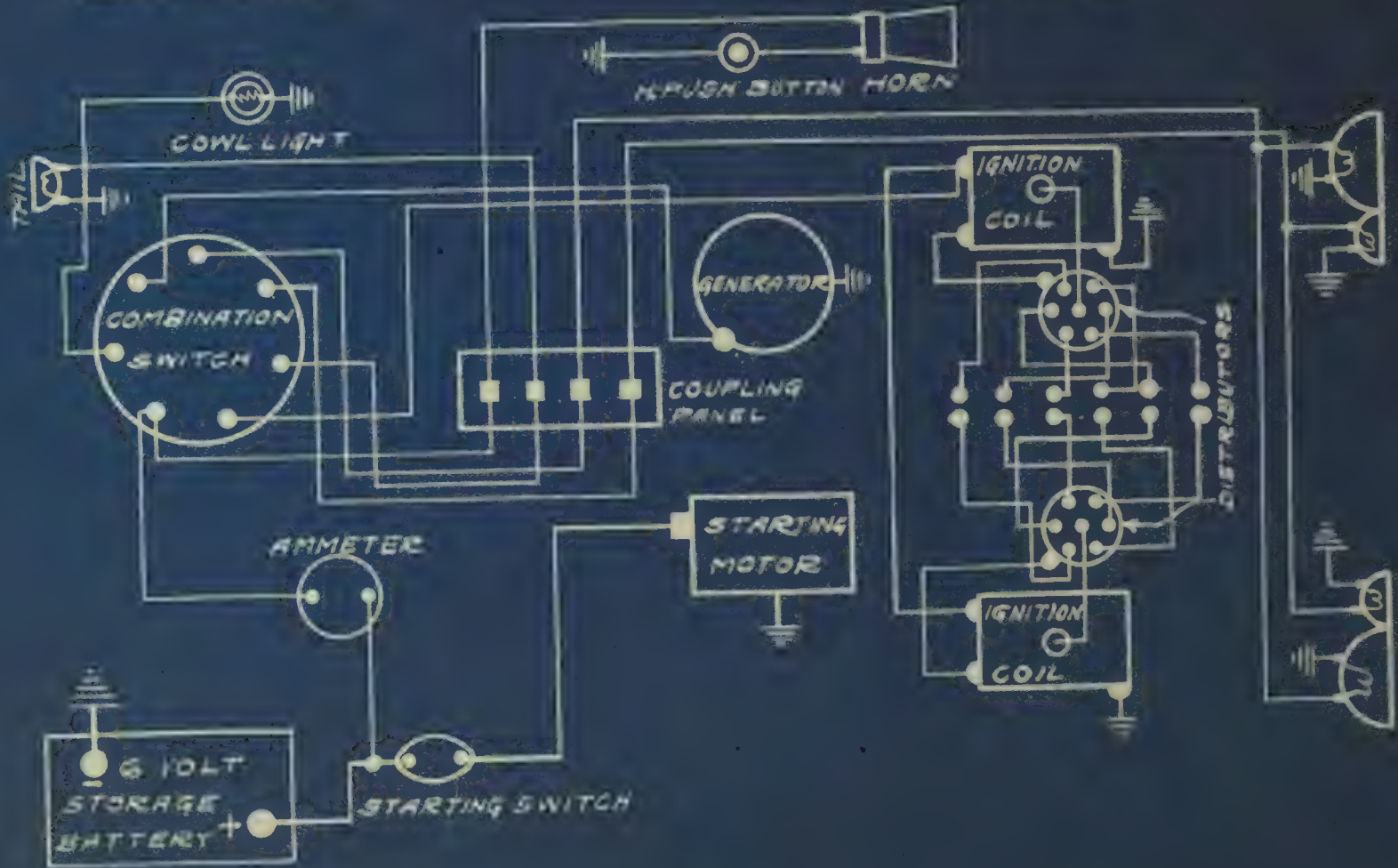
FROM MAR. 20 110-86



# KISSEL KAR 1917-18 DOUBLE SIX

DELCO SYSTEM

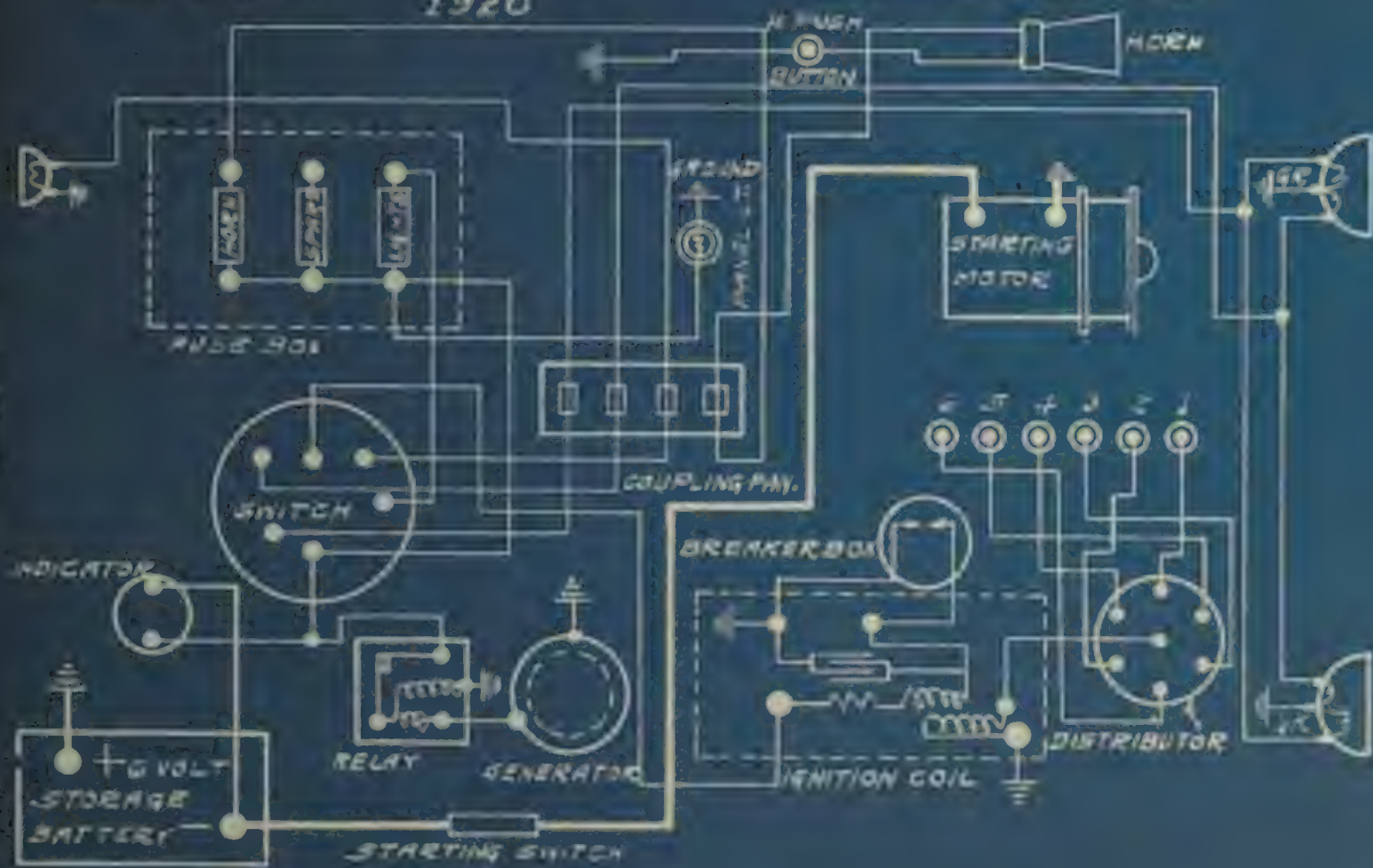
FROM HERE, 8/P 120-352



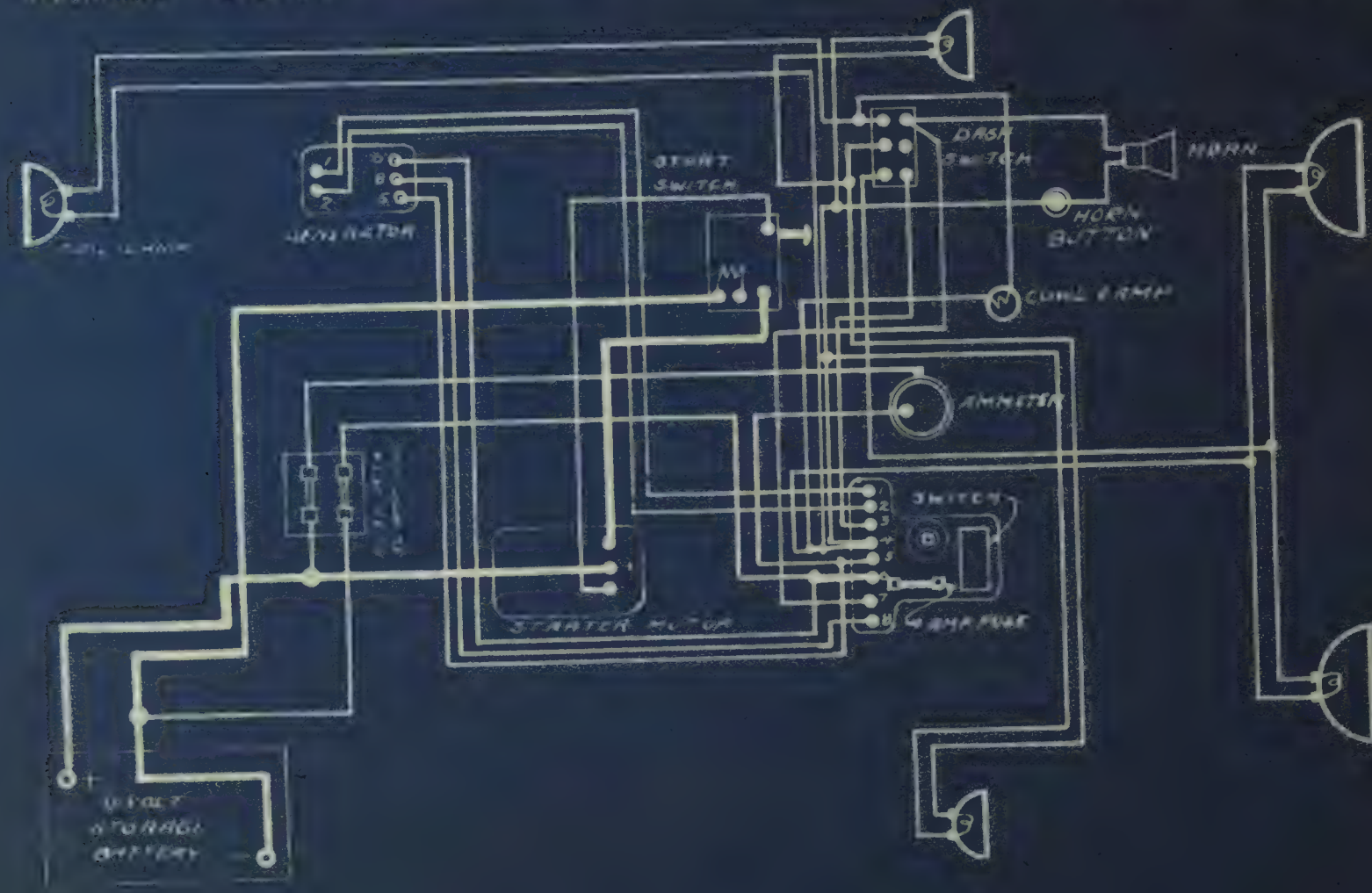


KISSEL KAR 1918  
RENT SYSTEM  
1919  
1920

HUNDRED POINT SIX  
FROM MFRS. 3/P 120-385



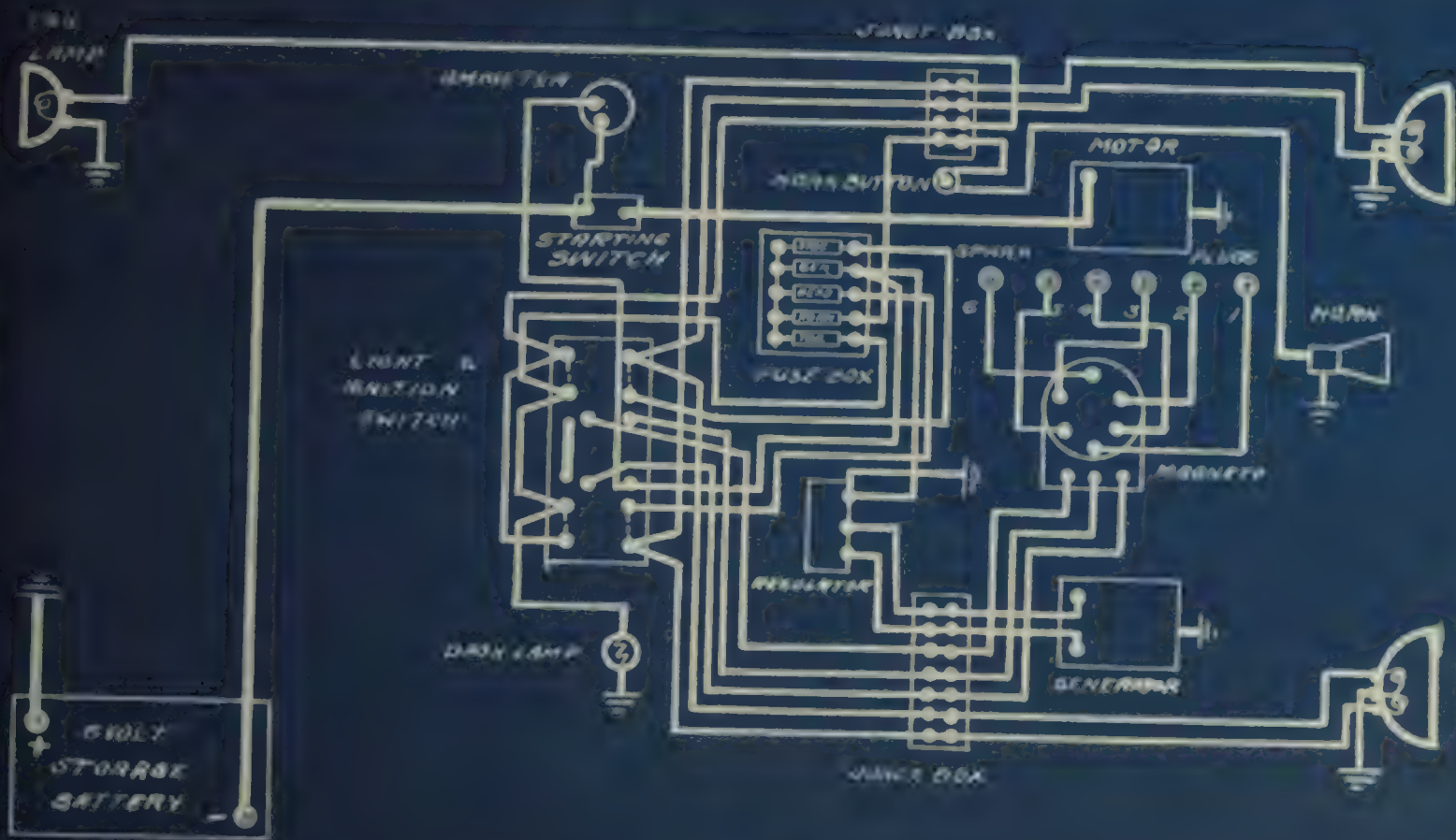
KLINE KAR MODEL B4-40 6-50 6-60 C4-30 1913-1914  
 FRESHMORE SYSTEM FROM MORGAN



**KLINE-KAR**  
WESTINGHOUSE

**MODEL 6-36 1916-1917-1918**

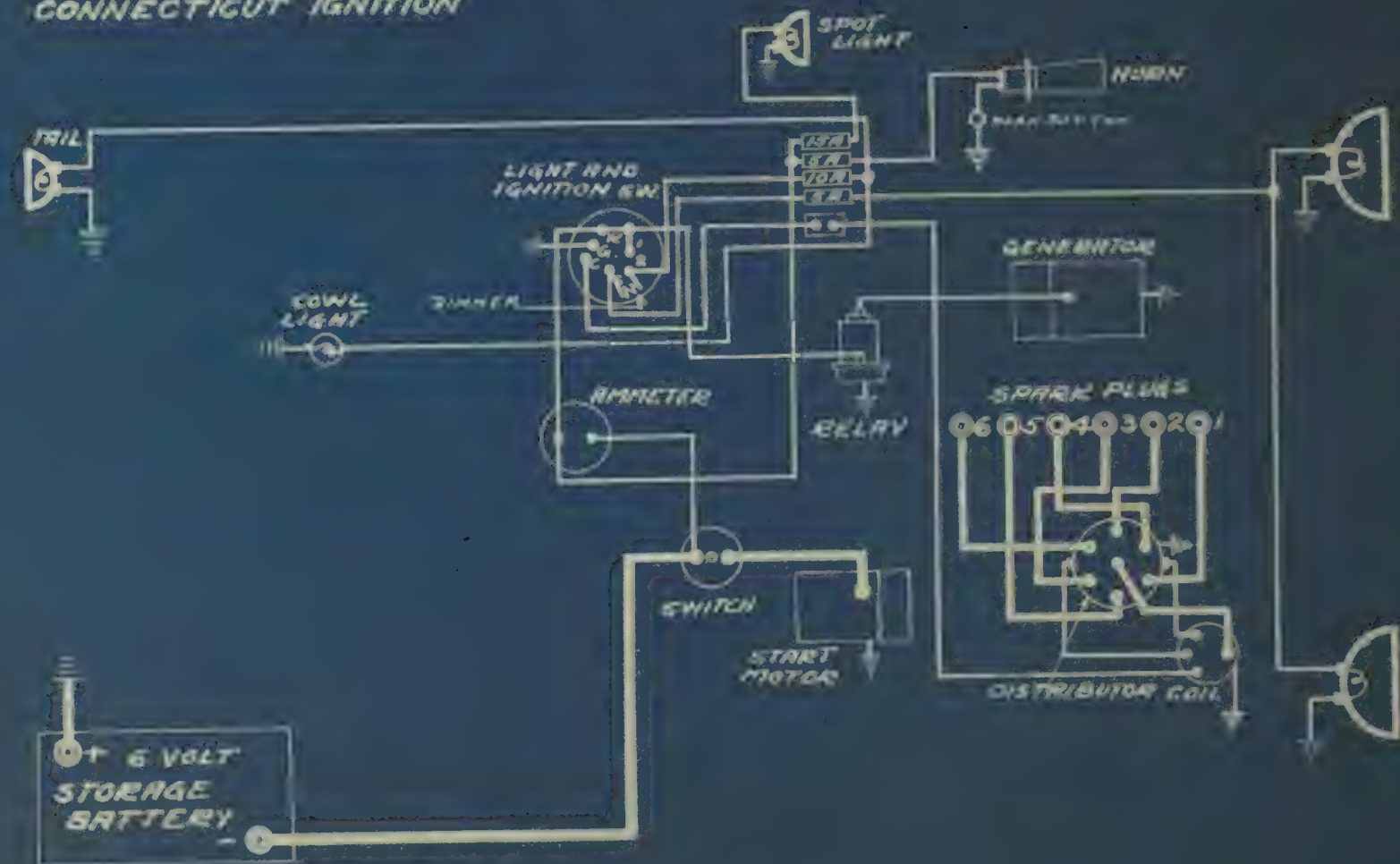
FROM MFG. DEPT.





# **KLINE KAE MODEL 6-55 1920** **WAGNER STARTING AND LIGHTING** **CONNECTICUT IGNITION**

FROM MP-23-A-1 6514



# KNOX TRUCK

BATTERY SYSTEM

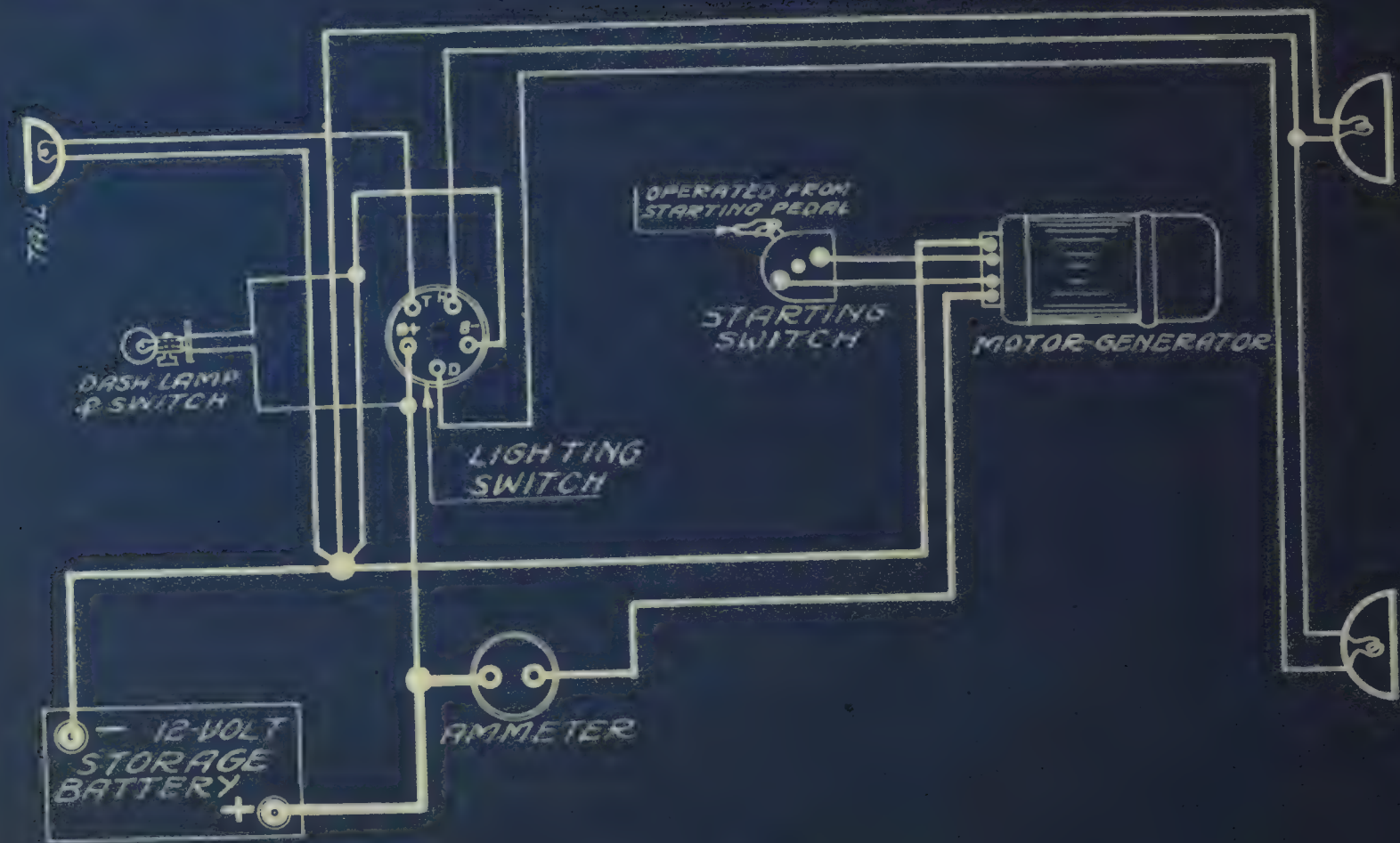
MODEL 35<sup>1/2</sup> 36

7/20/35 REVISED 10-3-36



KRIT 1915  
NORTH-EAST SYSTEM

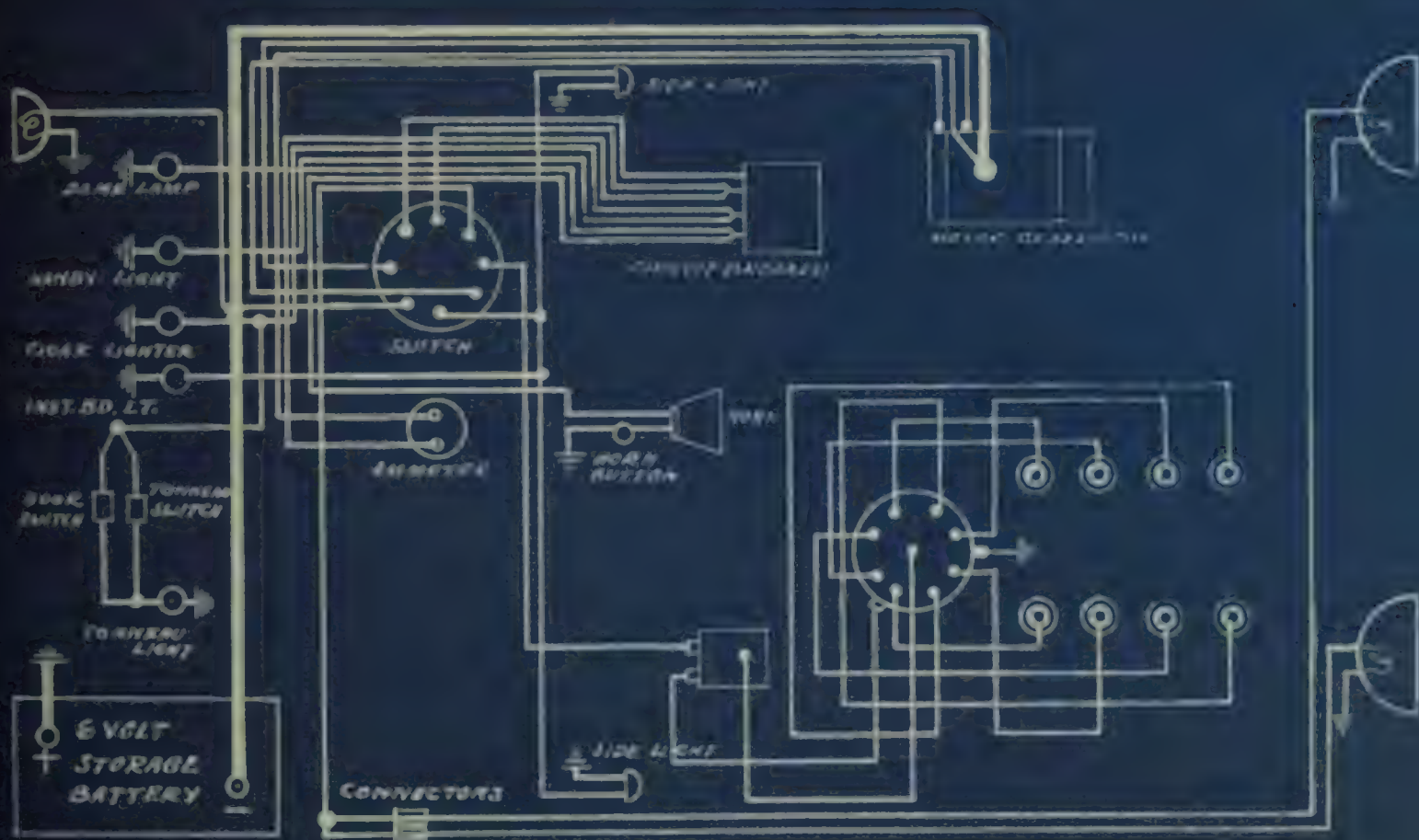
FROM NORTH-EAST PLATE 400





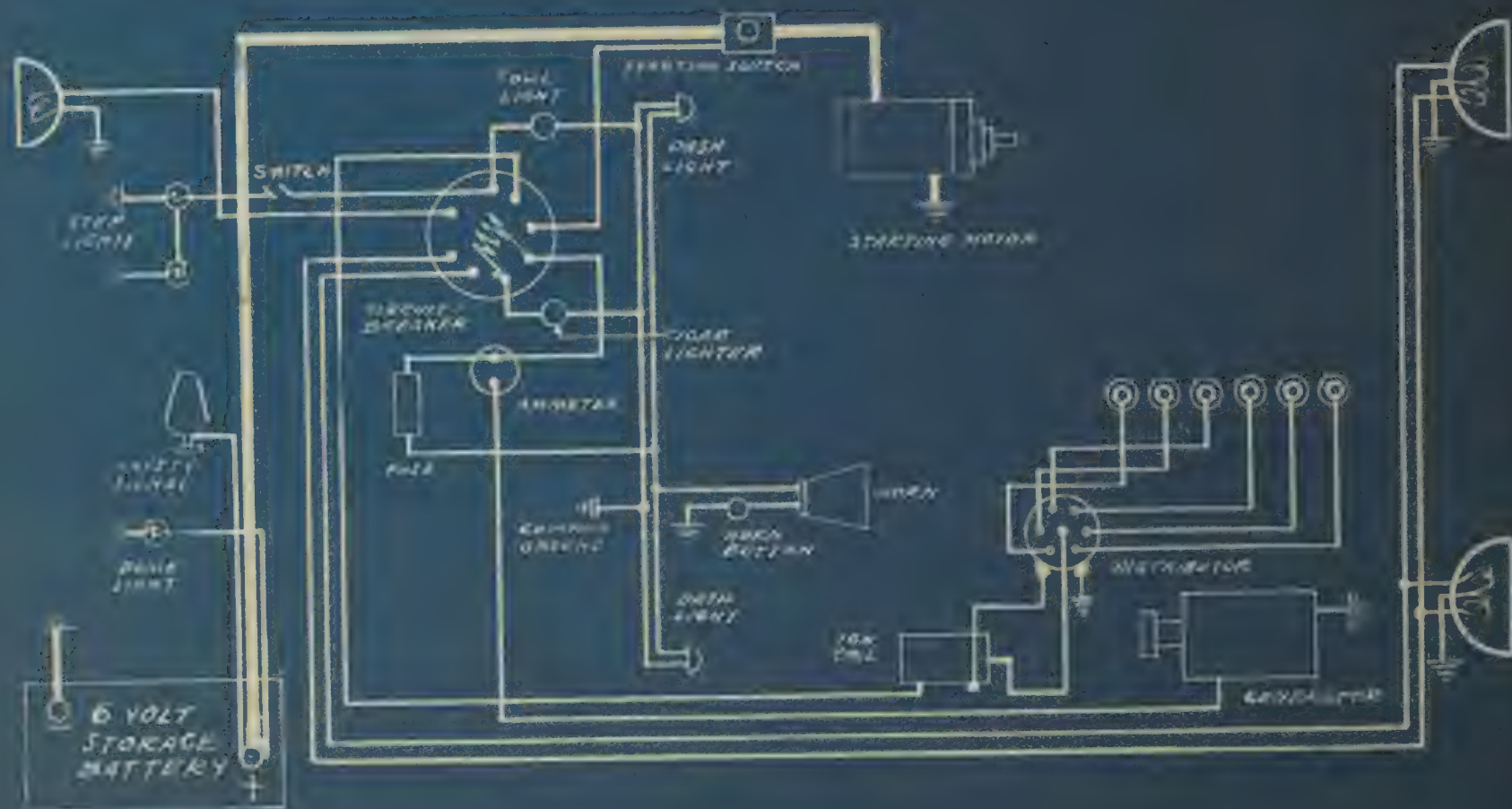
# LA FAYETTE "ALL MODELS" 1920 DELCO SYSTEM

Wiring Diagram



# LEACH-BILTWELL "POWER PLUS SIX" 1920 D.F. CO. SYSTEM

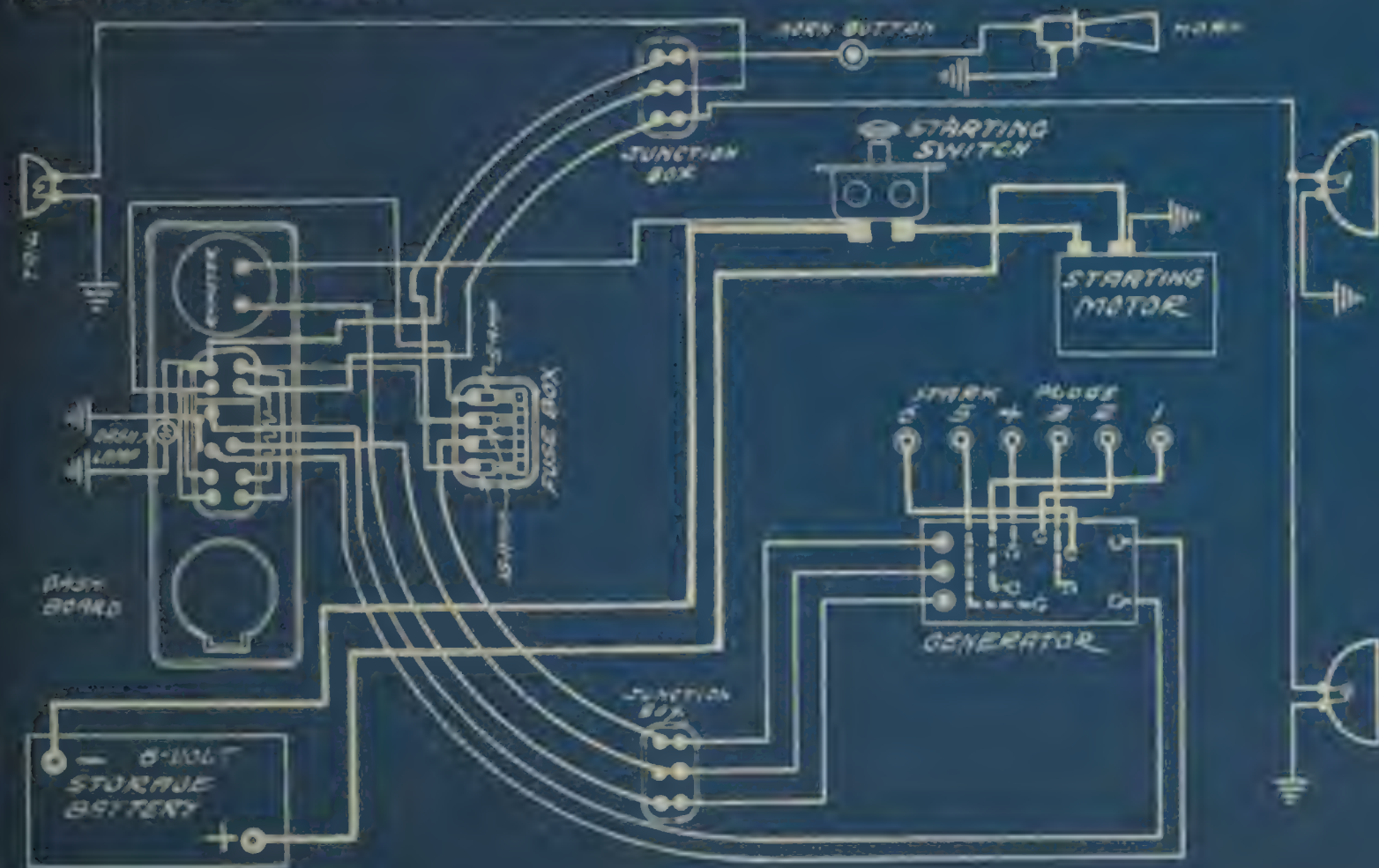
FROM MEXI B P 84



LEACH-BILTWELL CO.  
1920

# LEXINGTON 1915 4-K & 6-L NESTING HOUSE SYSTEM

FROM MFRS. BR I-100



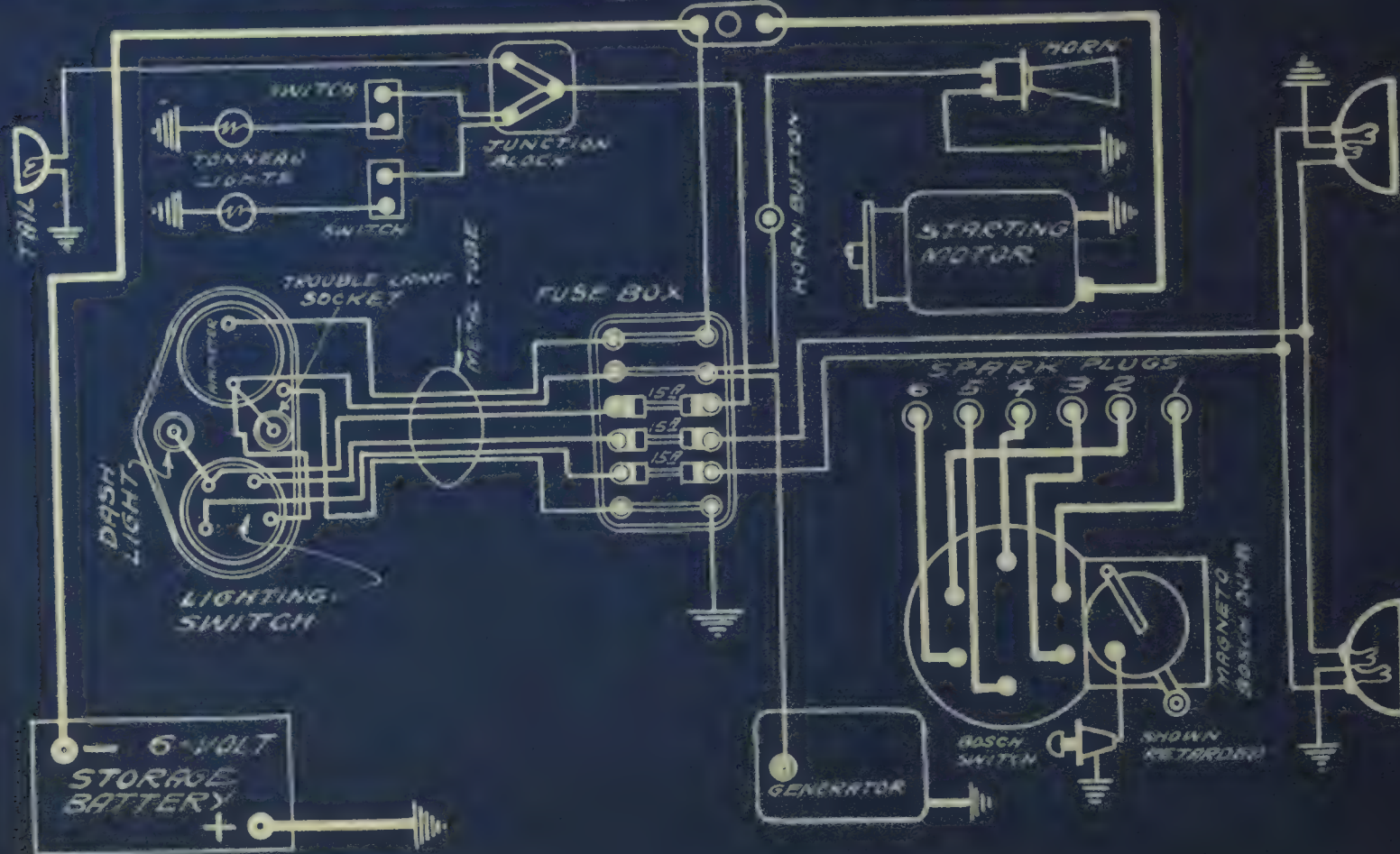


# LEXINGTON 1916 6-N

WESTINGHOUSE SYSTEM

FROM MFRS. B.P. I-110

STARTING SWITCH

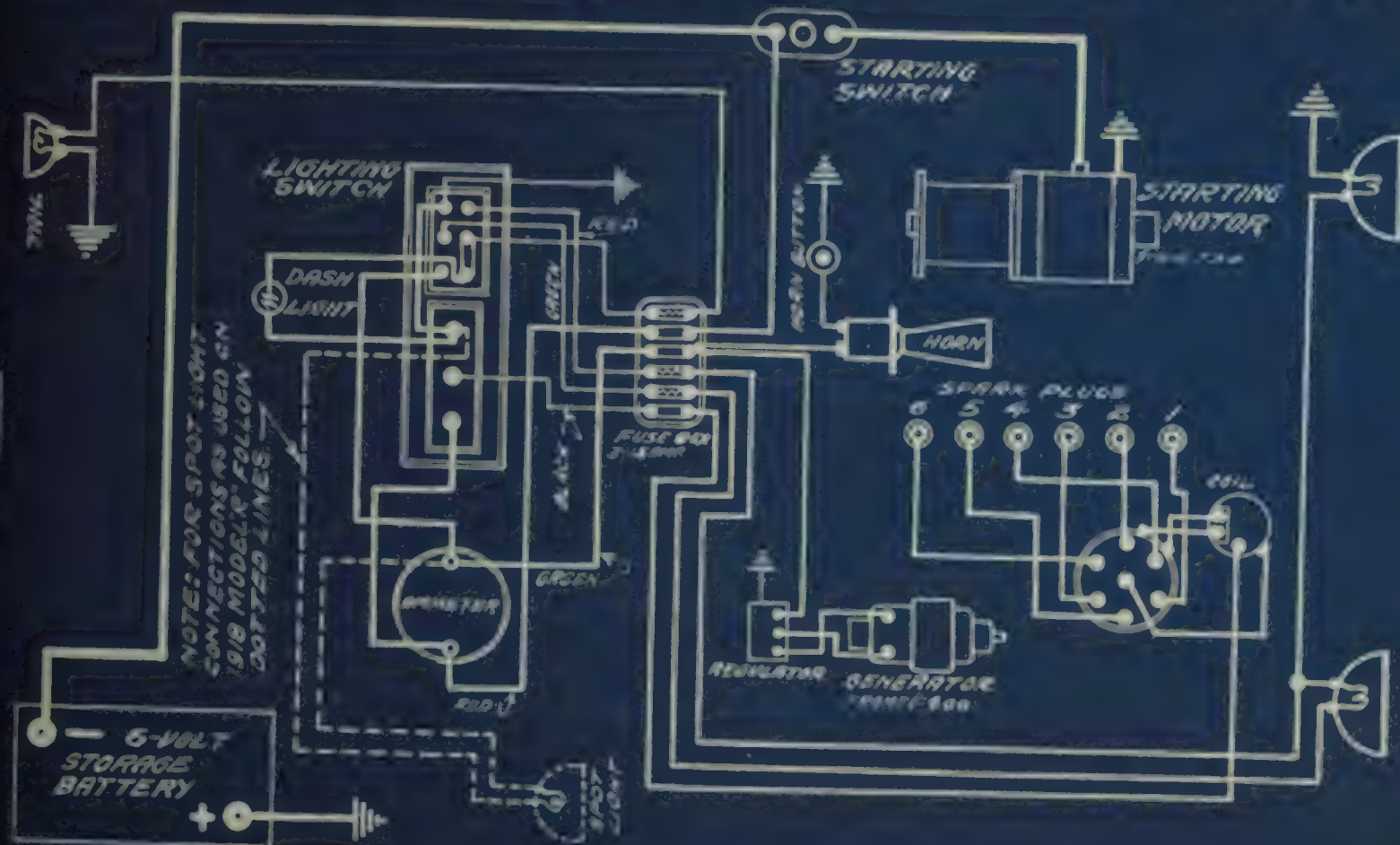


LEXINGTON 1916-17 "O"

## CONN. / EN. & SWITCH

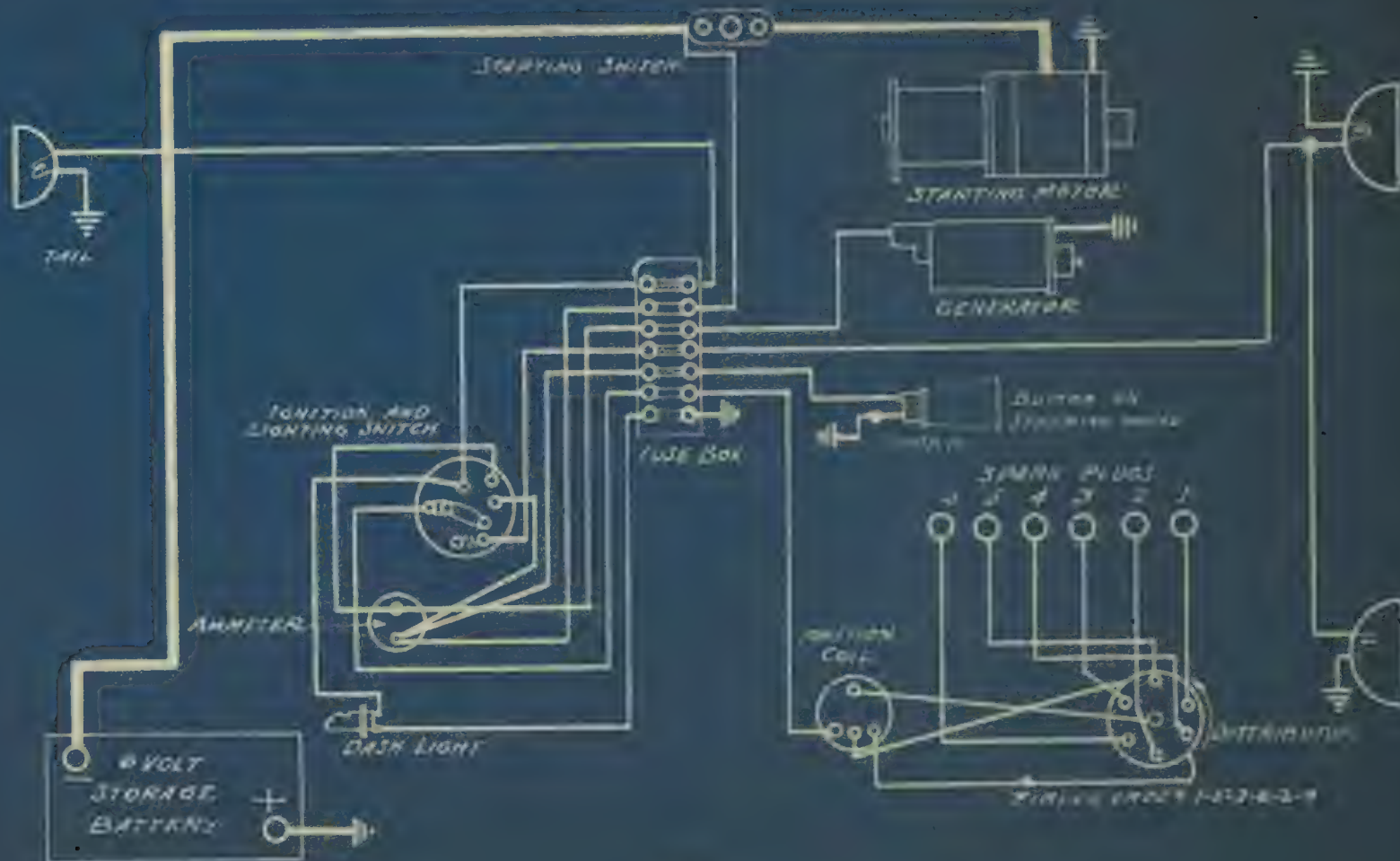
1918-1919 "R"

FRONT NEWS BP 1-131



LEXINGTON 1920 MODEL "S"  
GRAY AND DAVIS SYSTEM CONN. / GN.

FROM MPKS 21/2-1-17

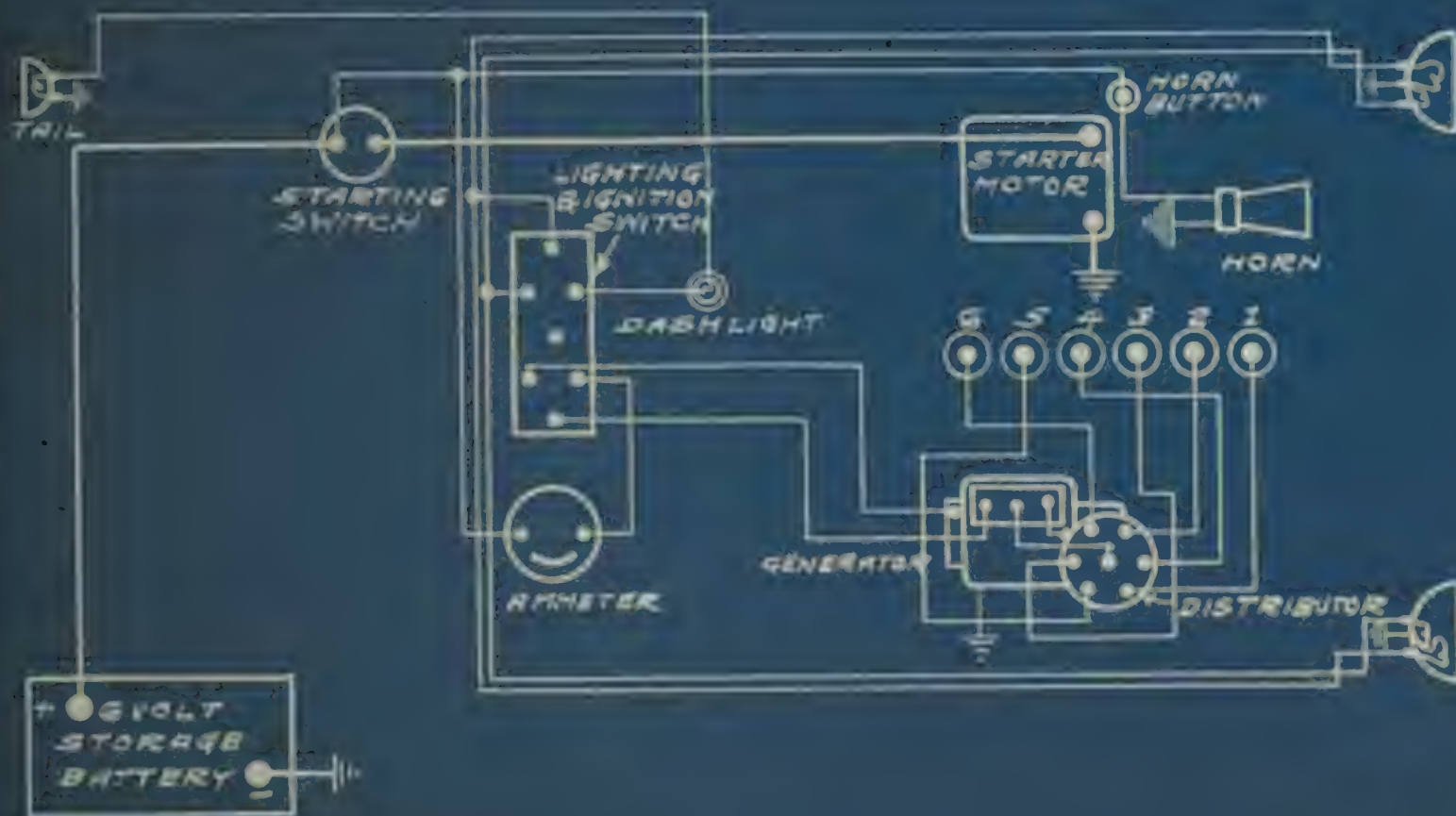




# LIBERTY 1917-18 10-A-B

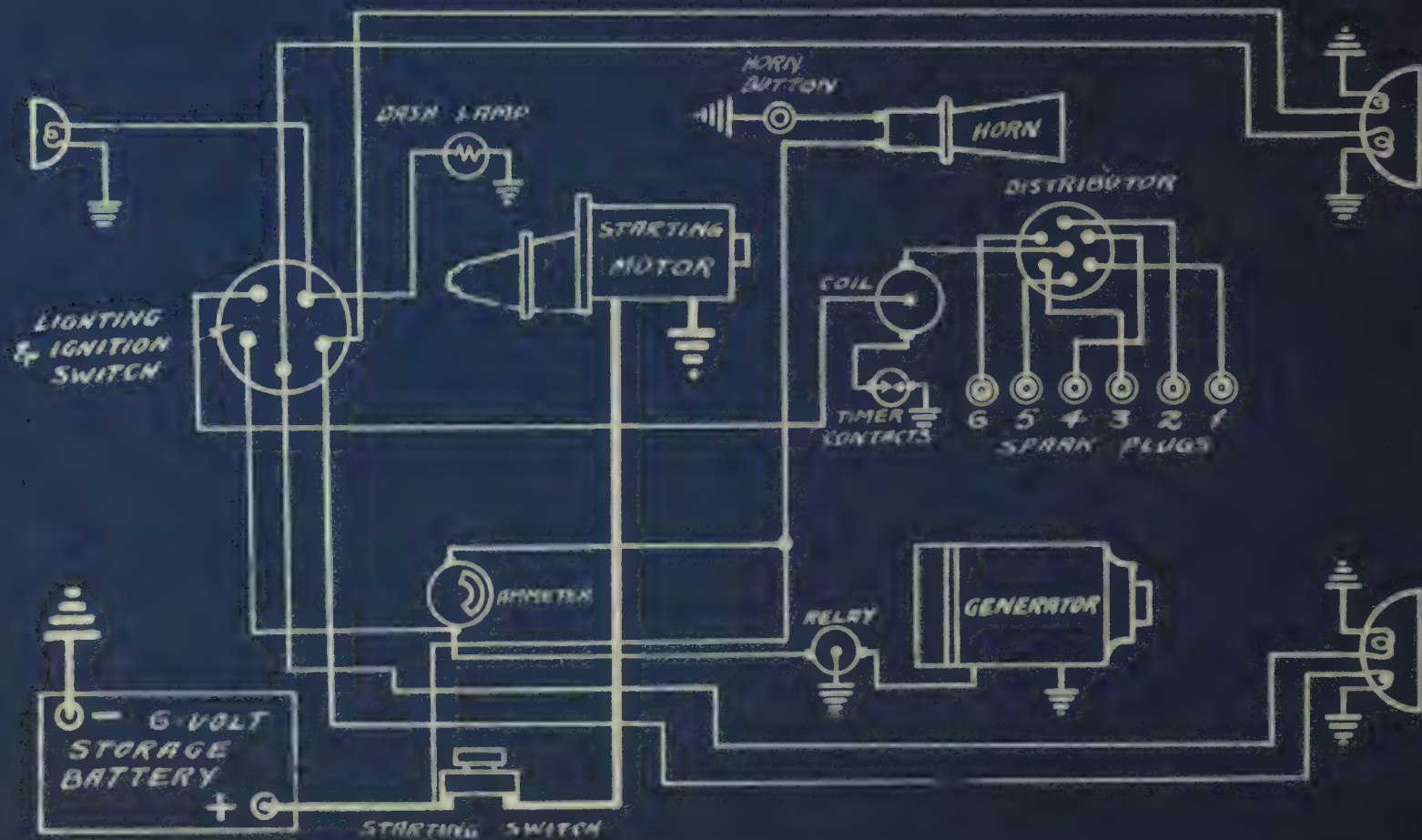
DELCO SYSTEM

FROM B/P K245



**LIBERTY 1919 10-B**  
**WAGNER SYSTEM**

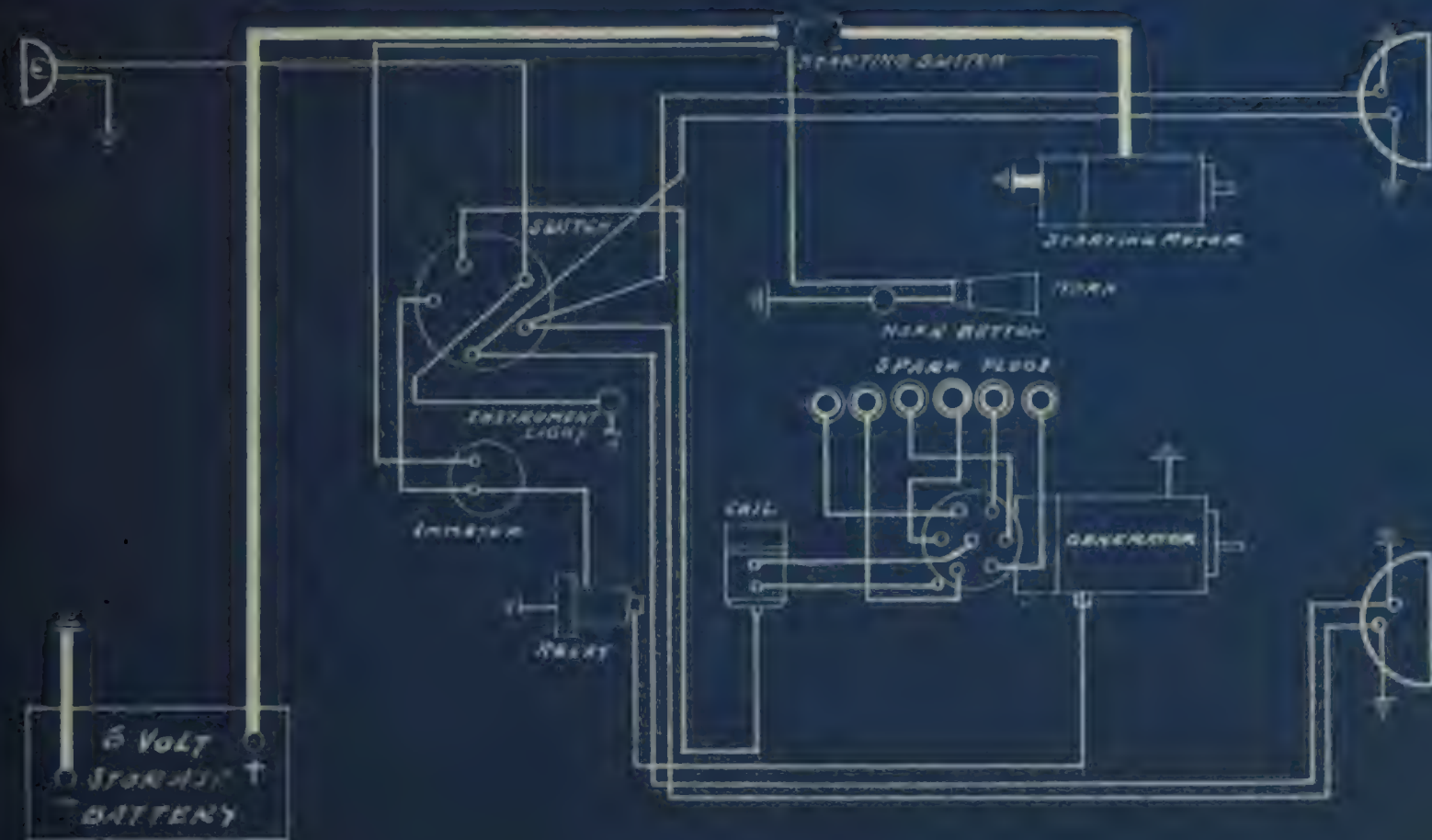
FROM BLUE PRINT W-2-72



# LIBERTY 10-B & 10-C 1919-1920

## WAGNER SYSTEM

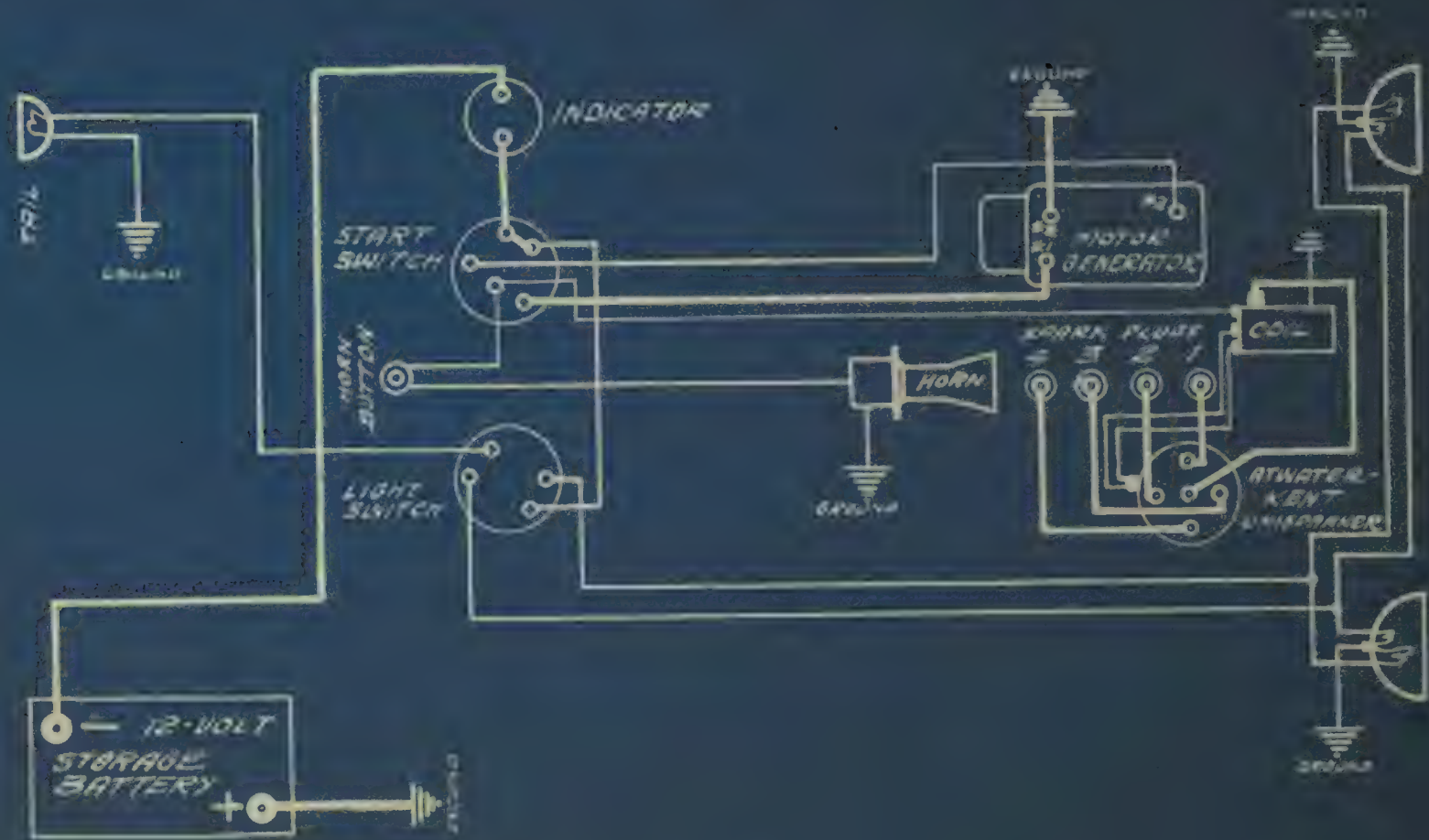
FORM NO. 1 N-2-72





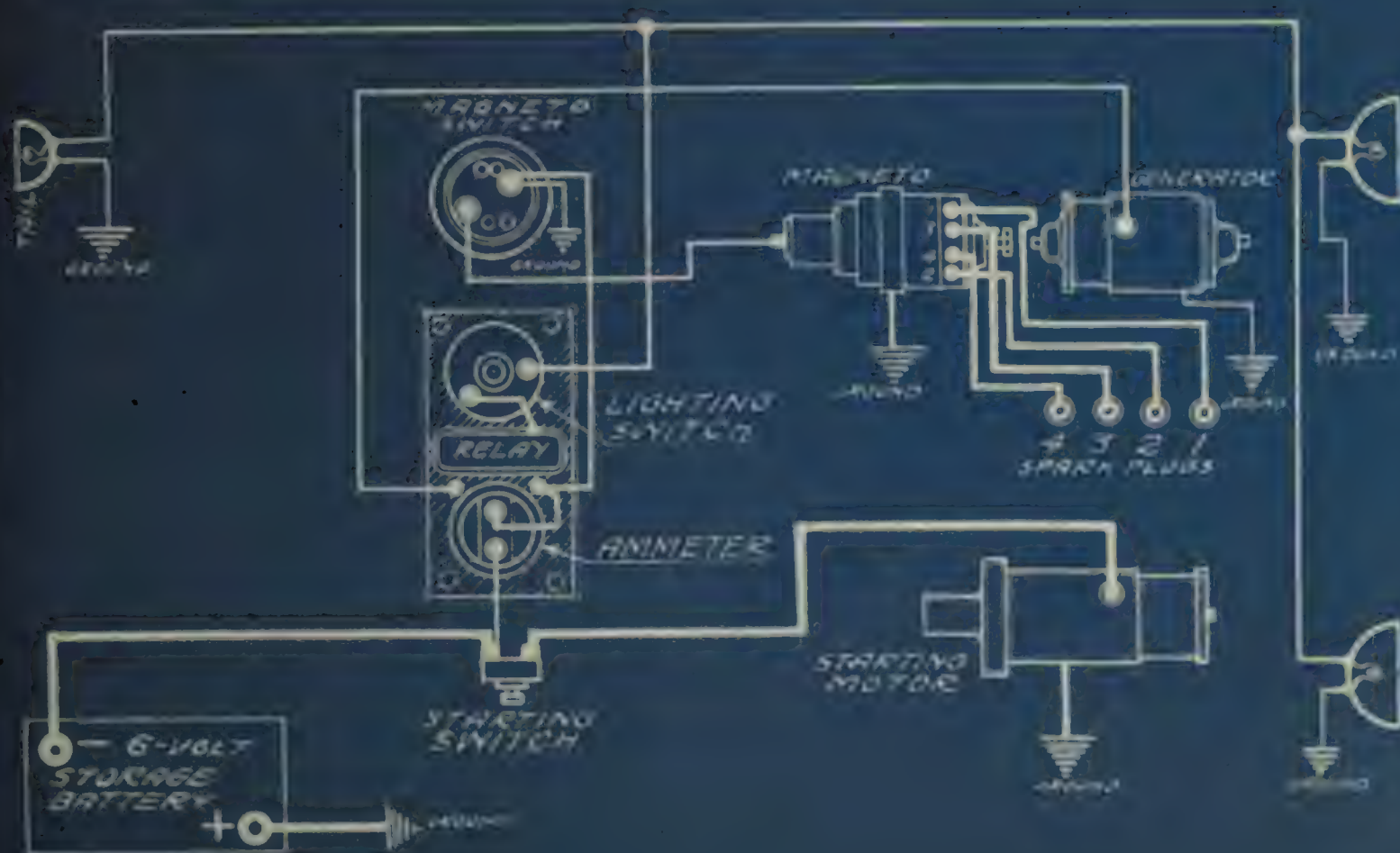
LIPPARD-STEWART TRUCK 1916 "M"  
DYNETO SYSTEM

SP0473 BP 8954

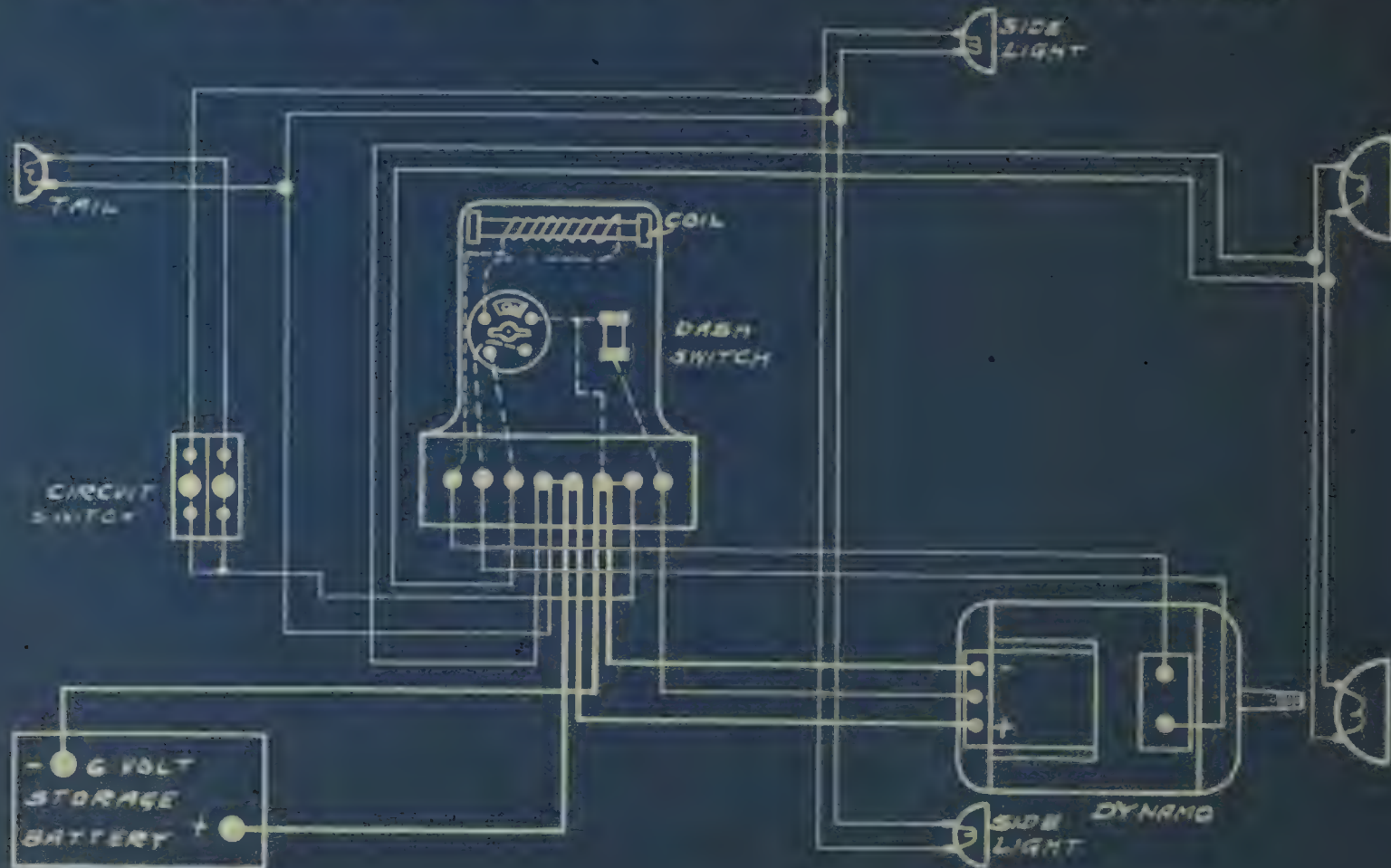


# LIPPARD-STEWART TRUCK 1917 "M-2" REMY SYSTEM

FROM NARS SP-84W



LOCOMOBILE 1911-12-13 "30" 1911-12 "38+48"  
 RUSHMORE SYSTEM FROM LOCOMOTIVE BOOK



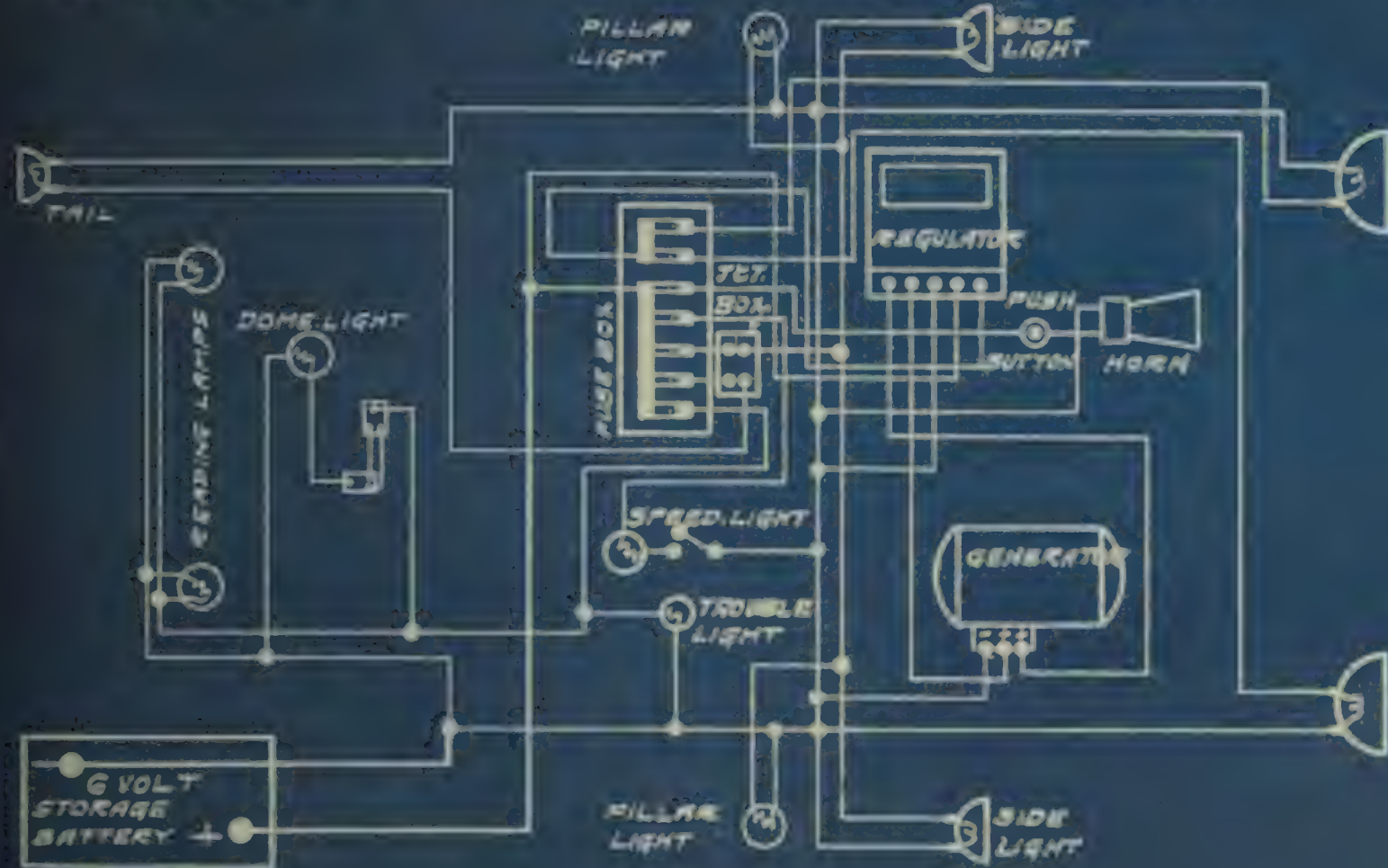
AUTOMOTIVE ELECTRIC CO.



# LOCOMOBILE 1913

ADLAKS SYSTEM

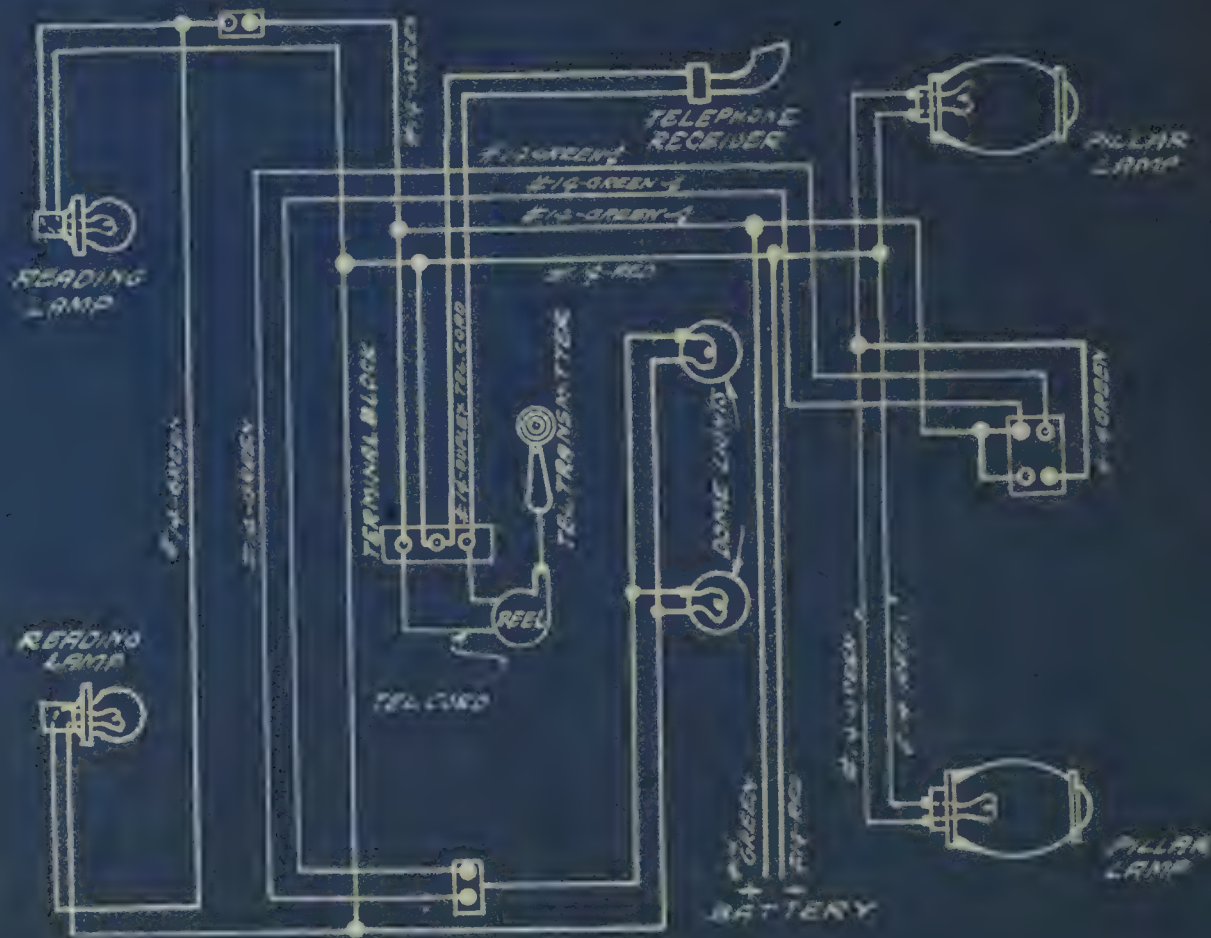
FROM LOCO. INST. BOOK



# LOCOMOBILE-1915-6

FROM MFR. INST. BOOK

WESTINGHOUSE SYSTEM BODY WIRING - CLOSED CARS

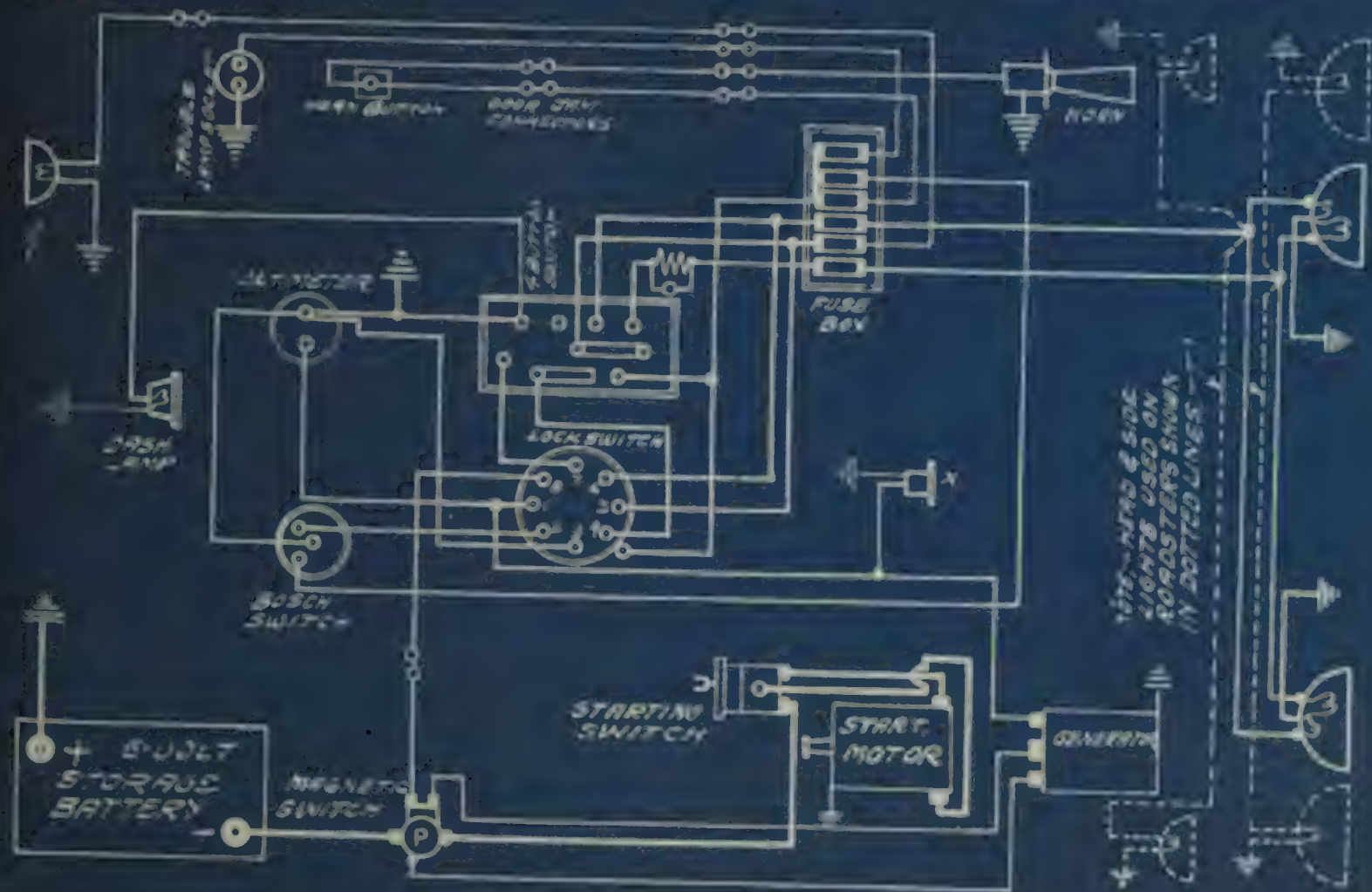


Copyright 1915 by  
Automotive Wiring Co.  
New York, N. Y.

# LOCOMOBILE 1915-16 38 & 48

## INVESTINGHOUSE SYSTEM

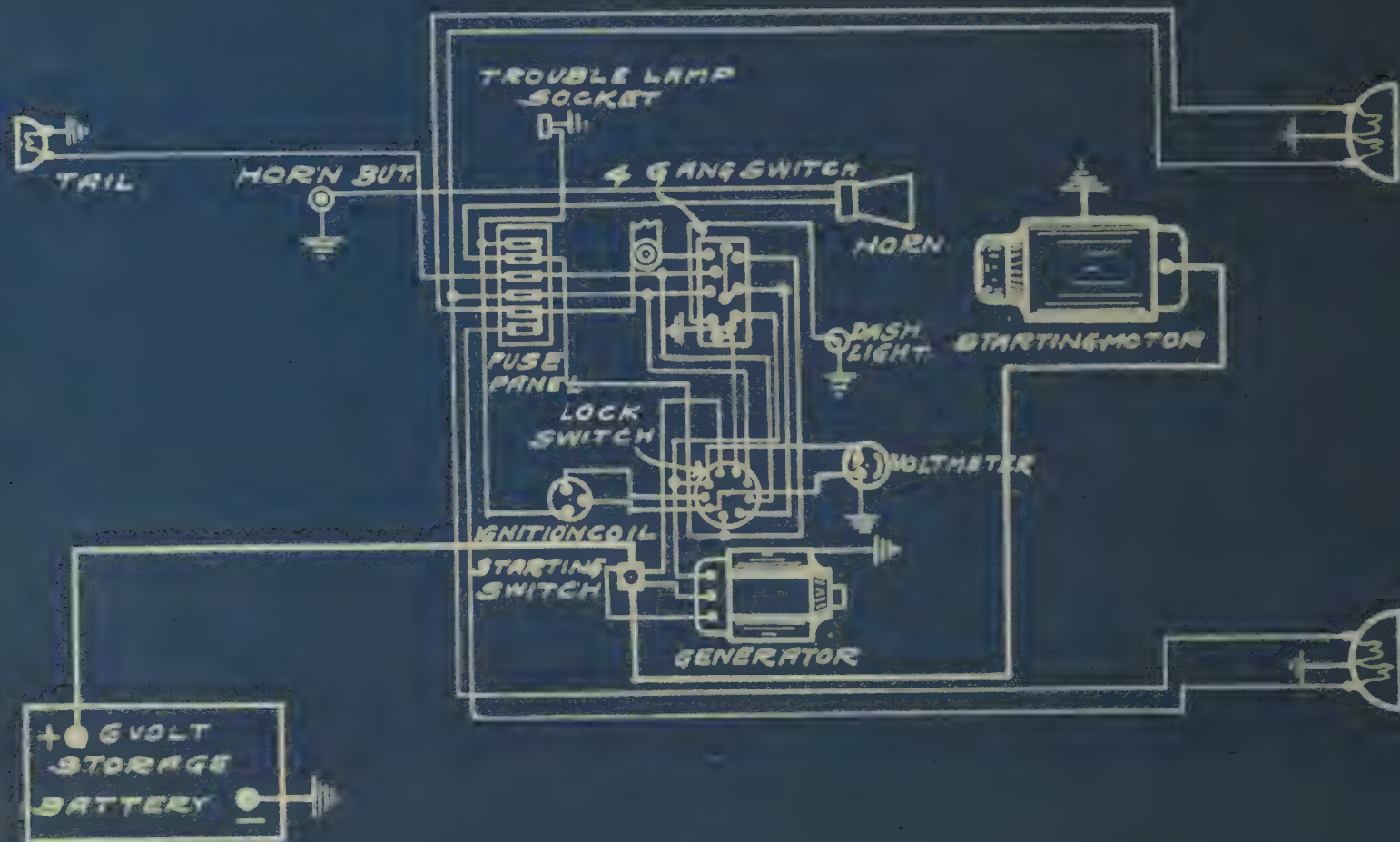
FROM 115V. 50 HZ. AC. MAIN





# LOCOMOBILE 1917-18 "38&48" 1919-20

WESTINGHOUSE SYSTEM BOSCH MAGNETO ON 1919 CARS, BEALING MAG. ON 1920 CARS



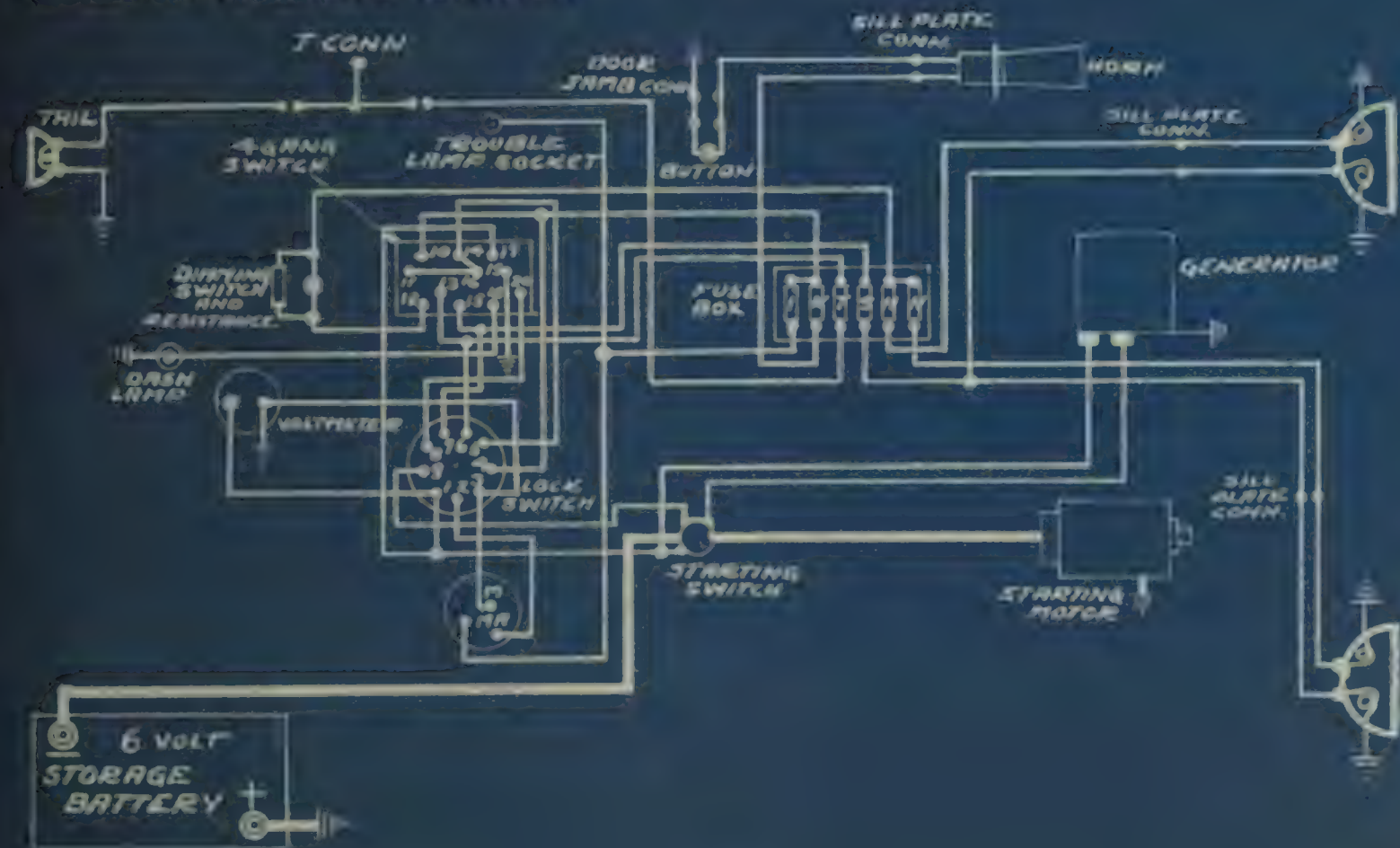
AUTOMOTIVE PUBLISHING CO. CHICAGO, ILL.

# LOCOMOBILE 48 1919-20

## WESTINGHOUSE STARTING AND LIGHTING

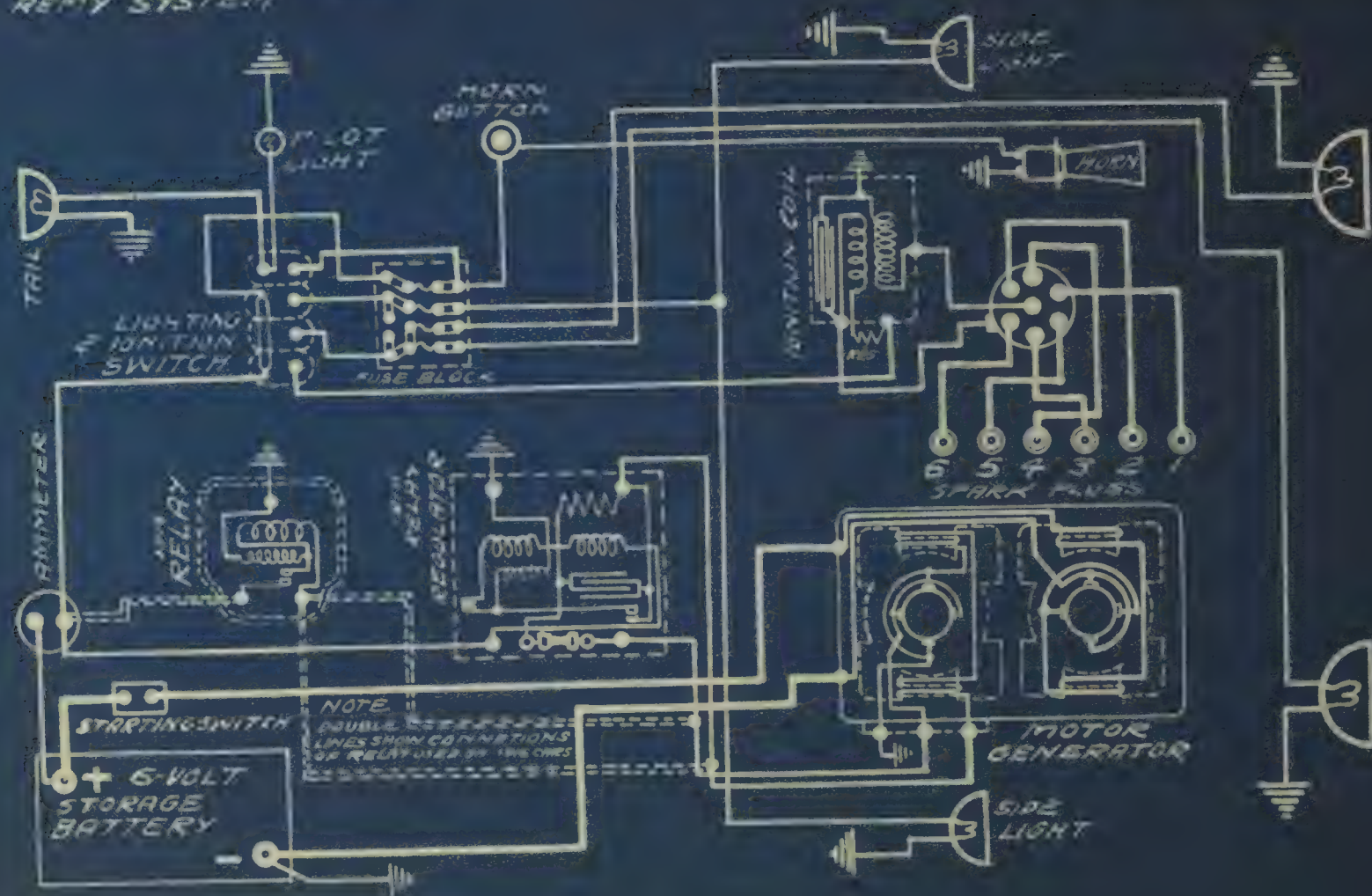
### BERLING MAGNETO IGNITION

FROM FIGURE 31, P. 2-4117



# L.P.C. 1915-1916 REMY SYSTEM

FROM REMY MANUAL



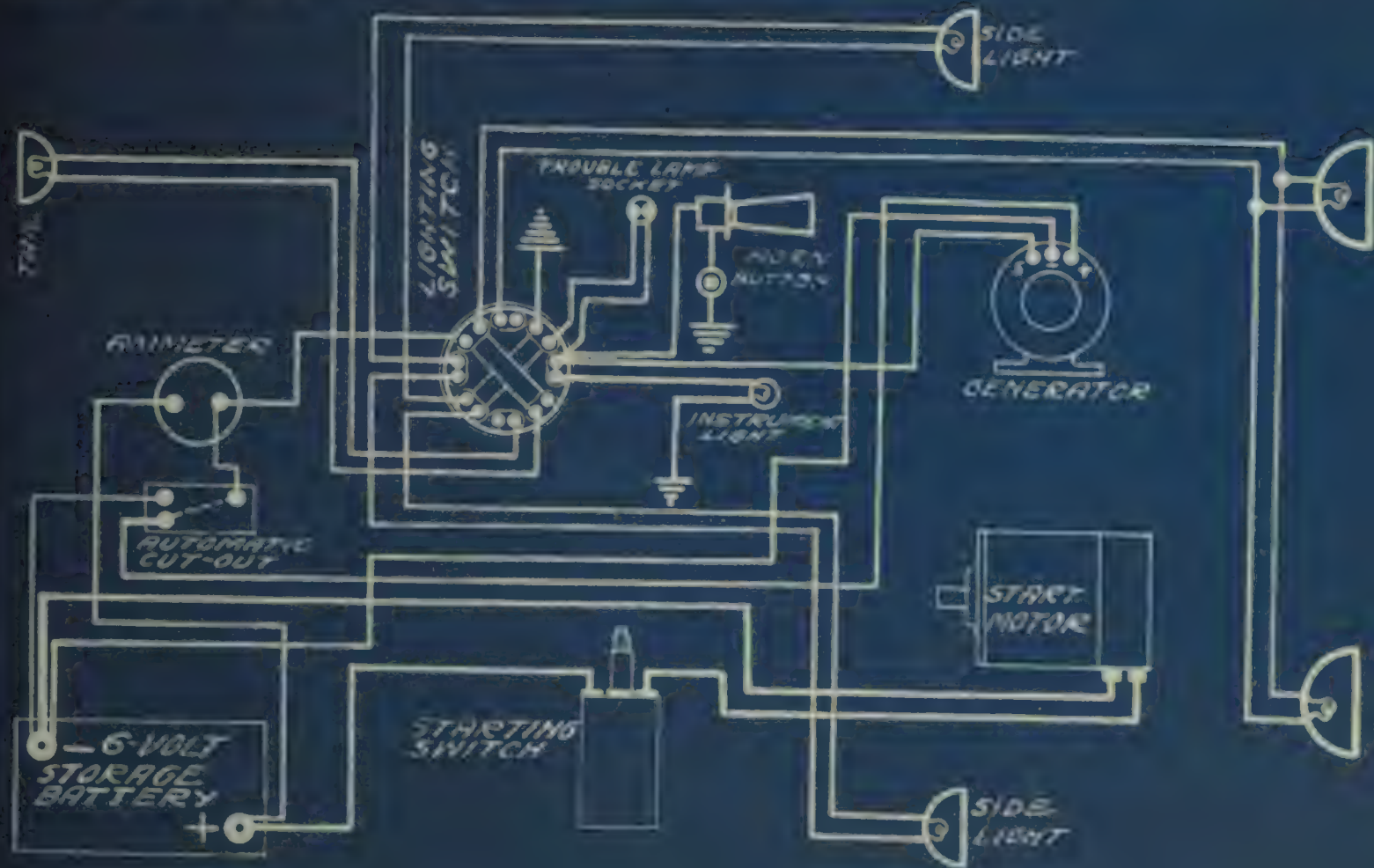
AMERICAN REFRIGERATING CO.  
MILWAUKEE, WIS.



# LOZIER 1913-1914 '77'

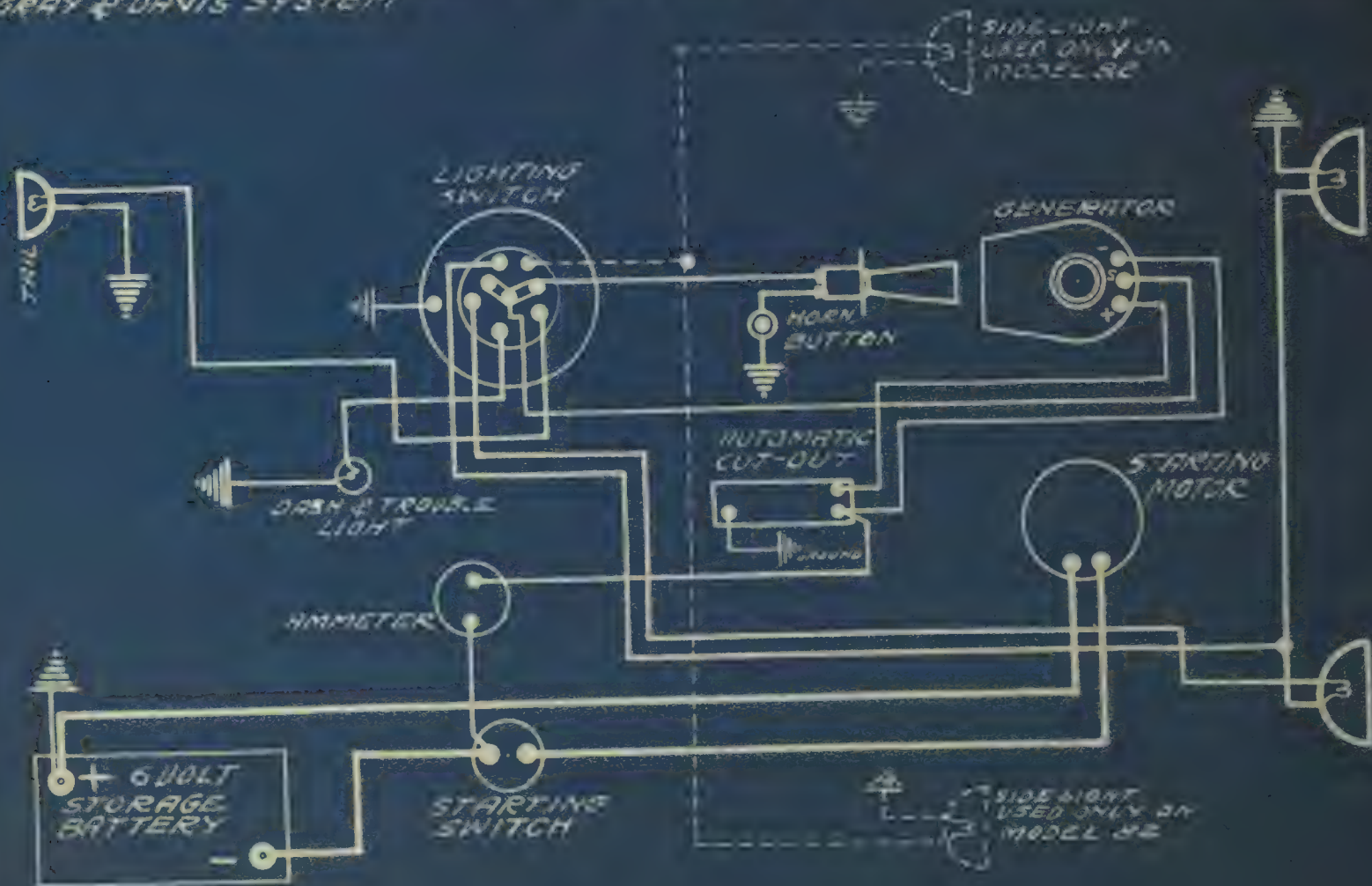
GRAY & ORRIS SYSTEM

FROM WIRE PLATE



# LOZIER 1915-16-17 TYPES 82 & 84 GRAY & DAVIS SYSTEM

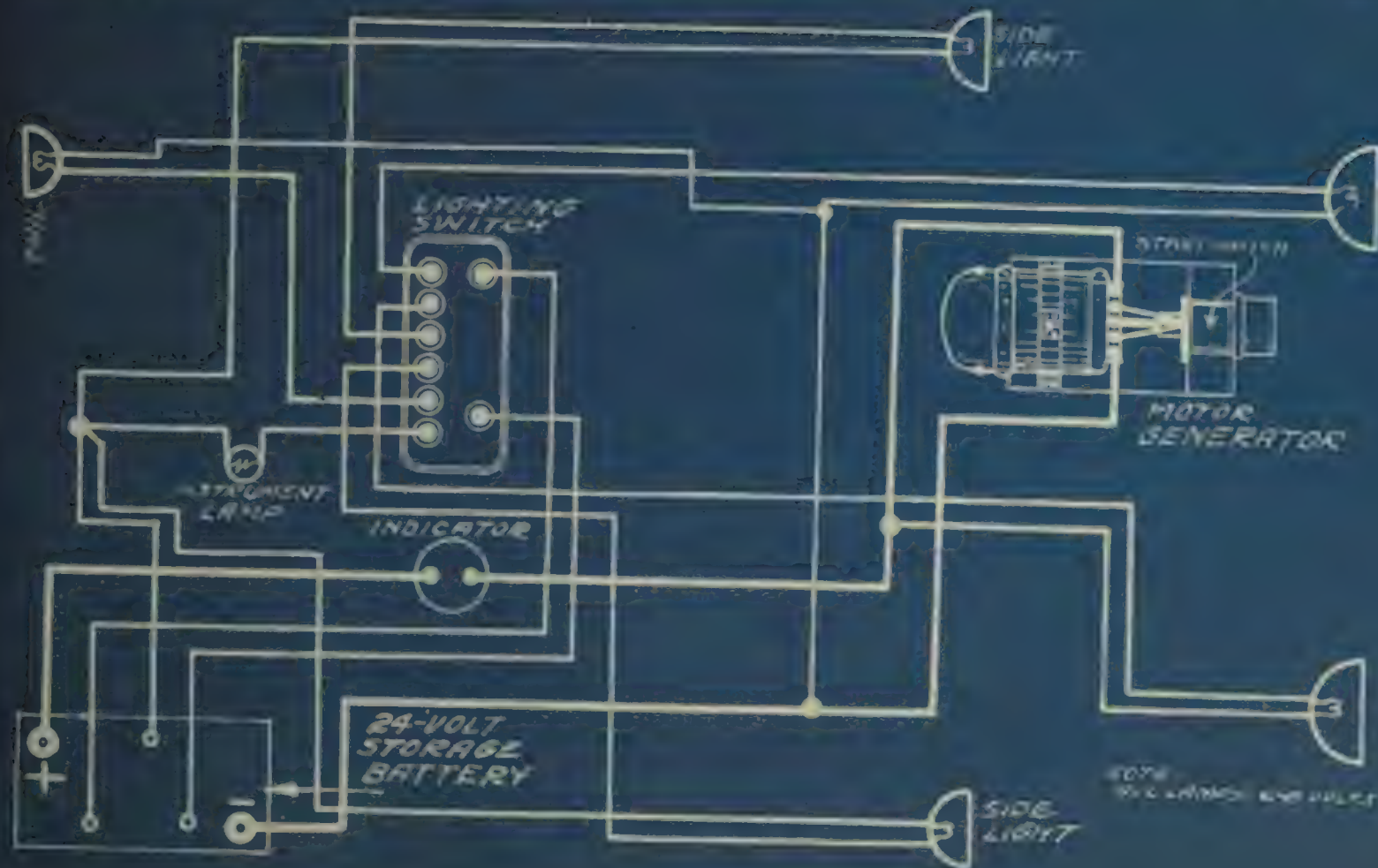
FROM MAIN PLATE



# LYONS-KNIGHT 1914

## NORTH-EAST SYSTEM

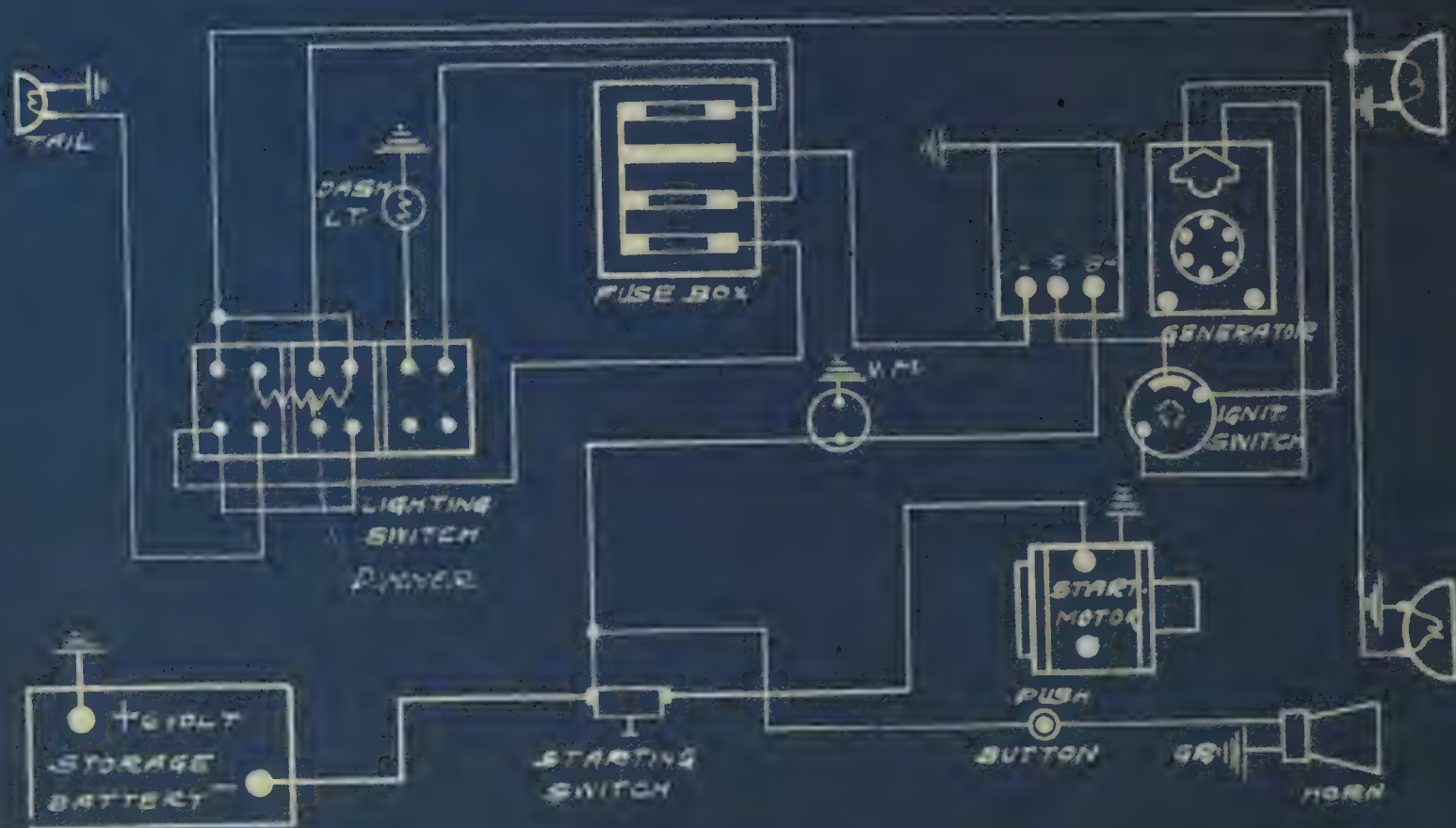
FROM N.E. PLATE 380





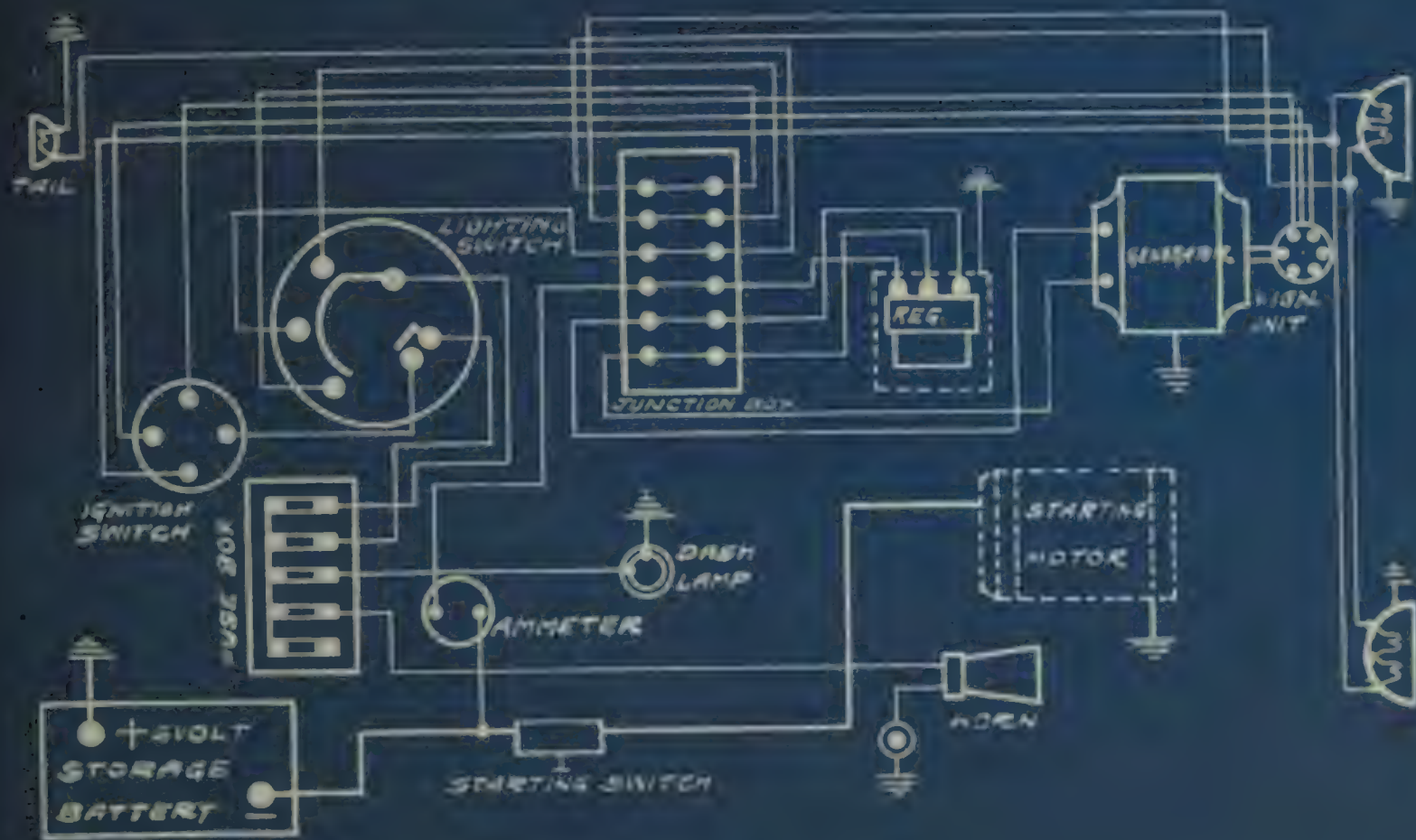
# McFARLAN 1915 WESTINGHOUSE SYSTEM

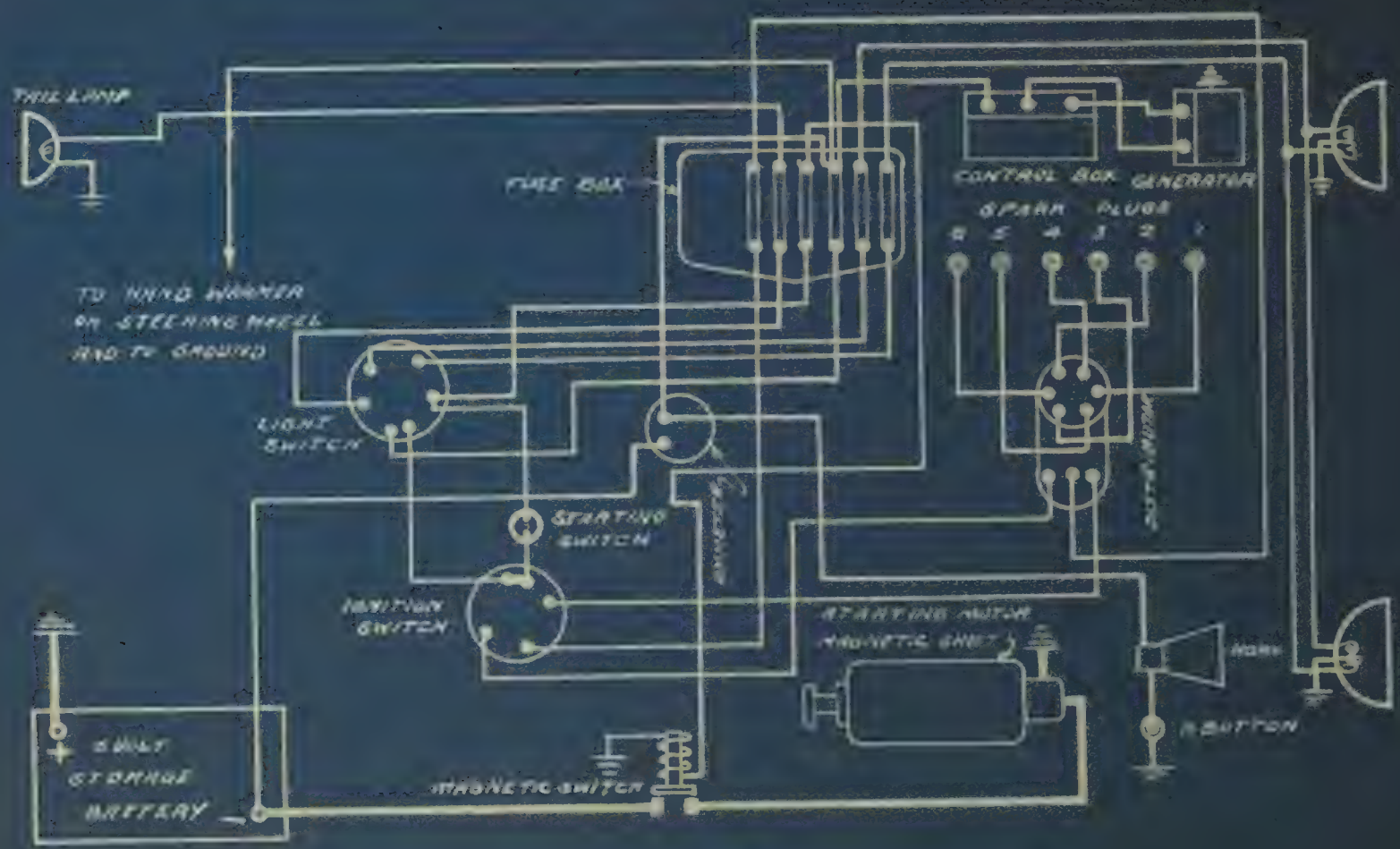
FROM WEST PLATE 31



# MS FARLAN 1916 WESTINGHOUSE SYSTEM

FROM WEST PLATE 82





AUTOMOTIVE ELECTRICAL CO. CHICAGO, ILL. U.S.A.



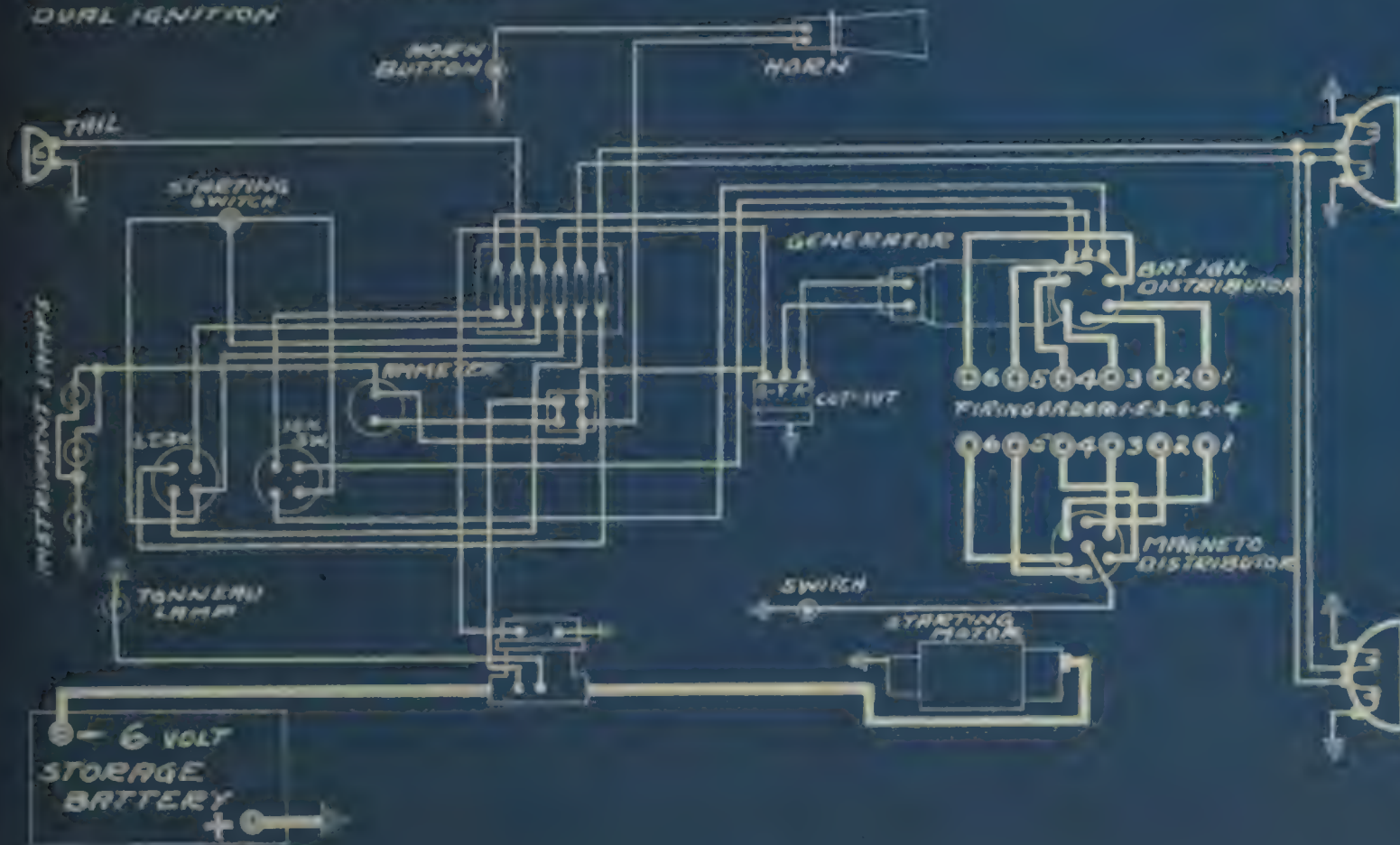
# McFARLAN 1919-1920

WESTINGHOUSE START LIGHT AND IGNITION

BOSCH MAGNETO IGNITION

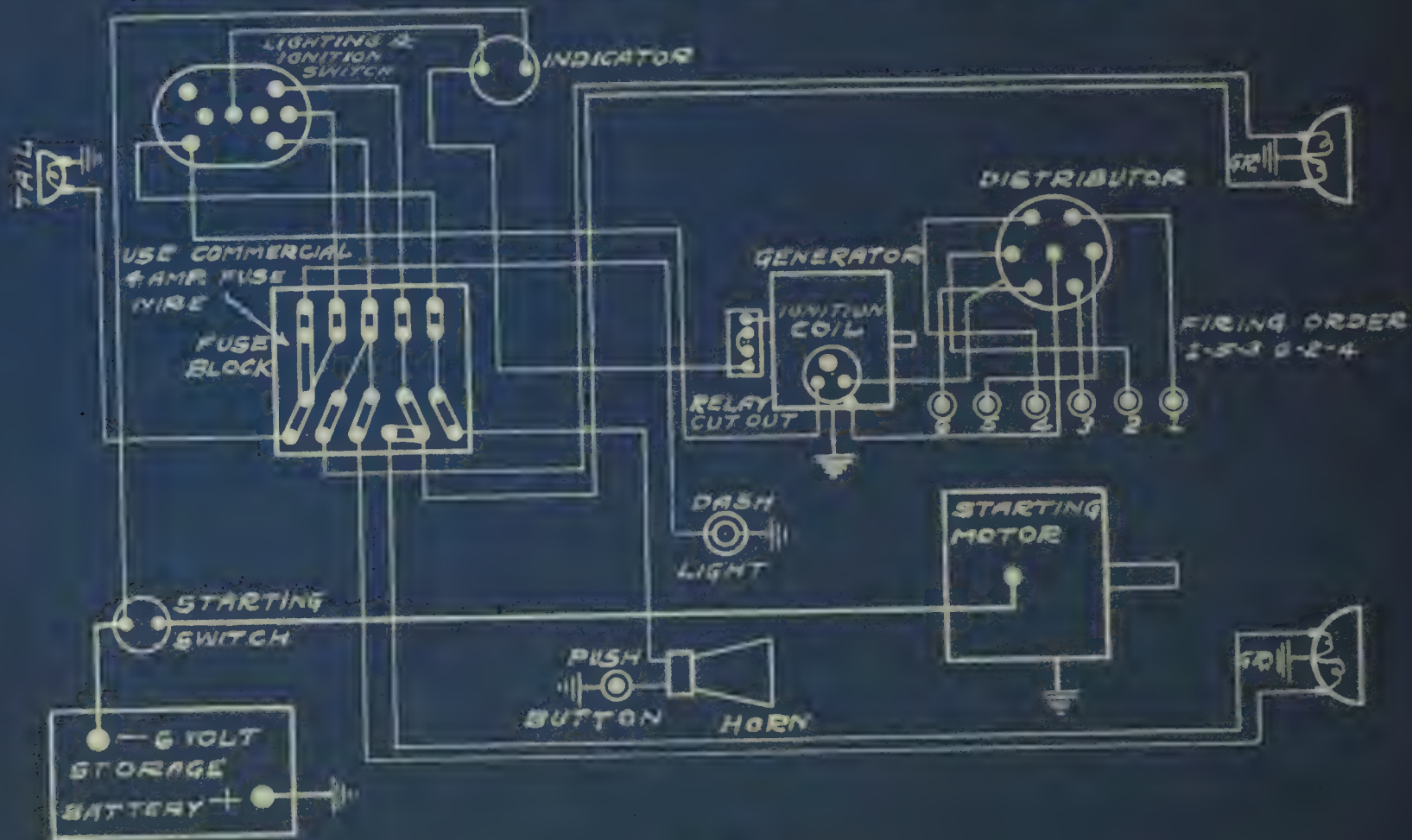
DUAL IGNITION

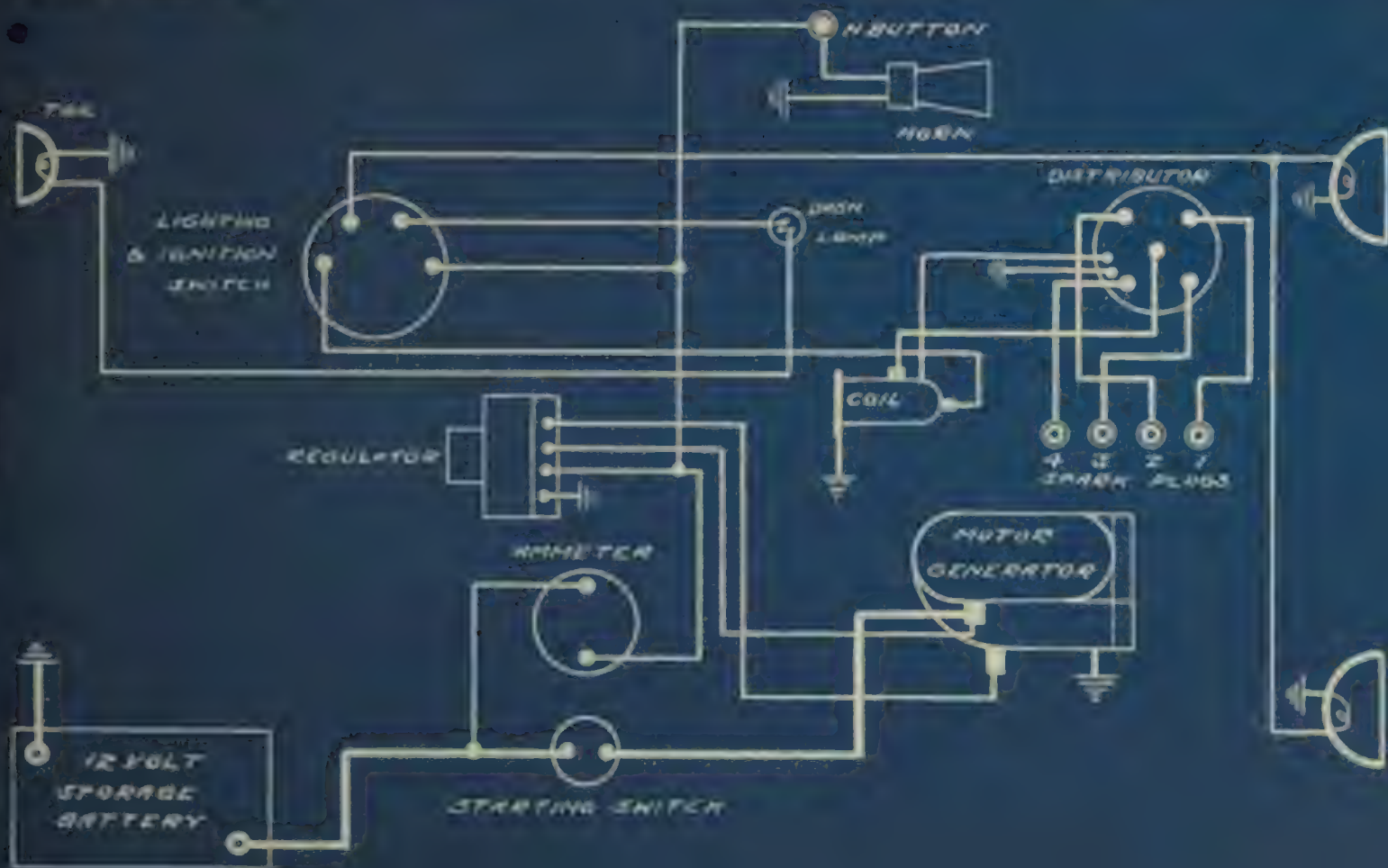
PROPT. McFARLAN



# MADISON 1916-17-18

REMY SYSTEM USED ON 6 & 8 CYLINDER CARS FROM MFRS B/P 494-B



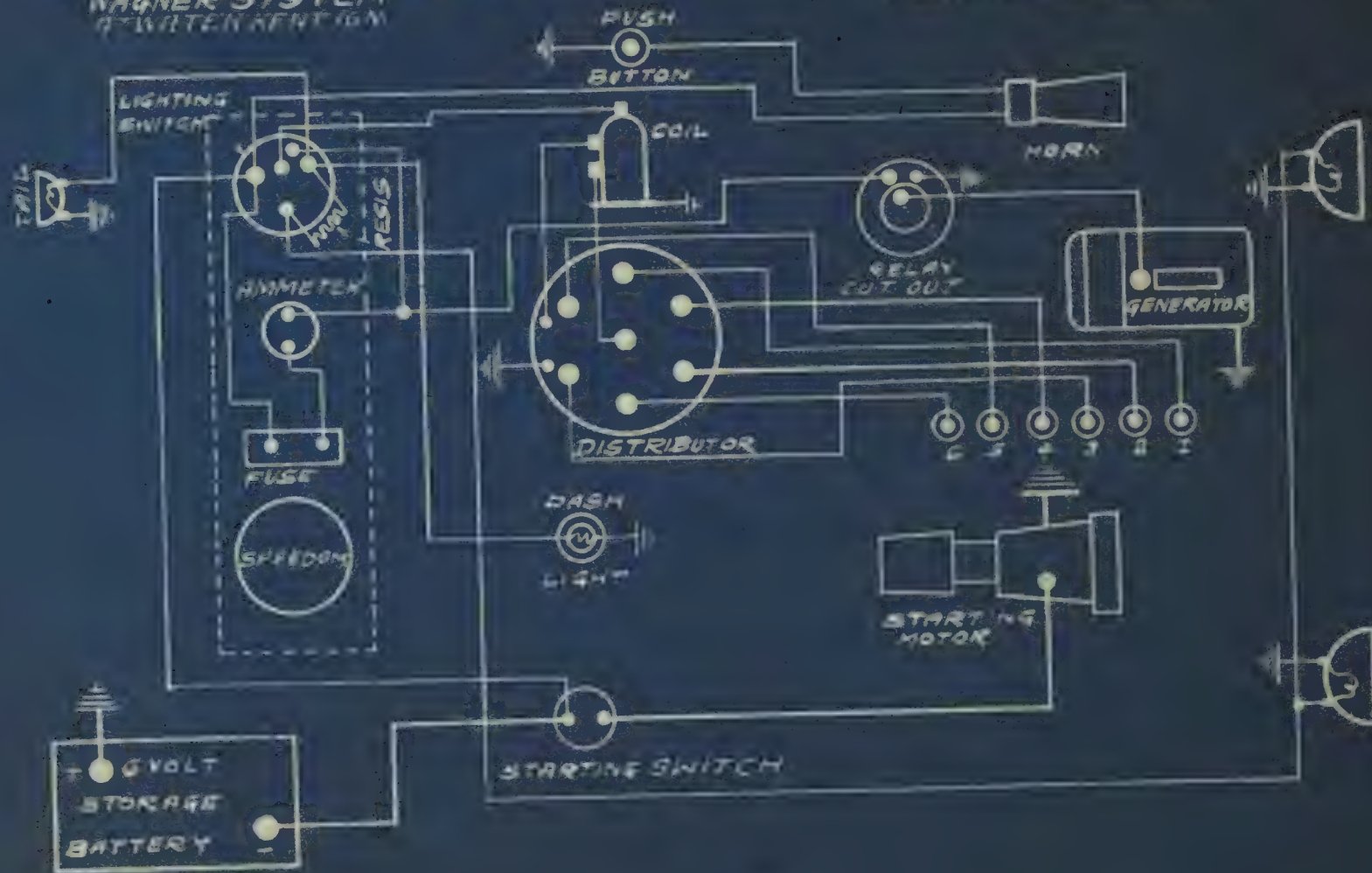




# MAIBOHM 1918 "B"

WAGNER SYSTEM  
WATER KENTIGN

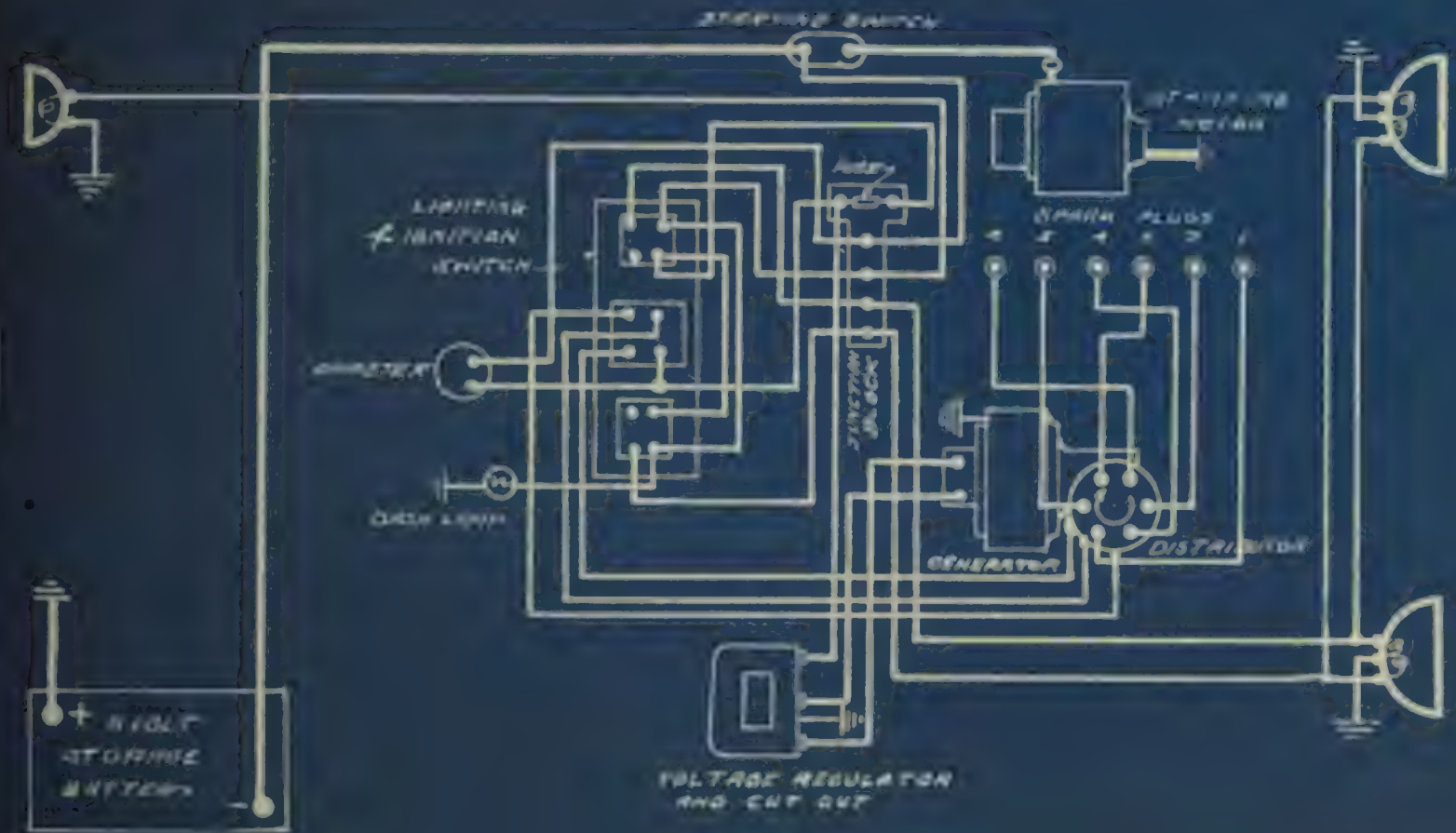
FROM MERS B/P 10



# MARION-HANDLEY 1916-K - 1917 A-B

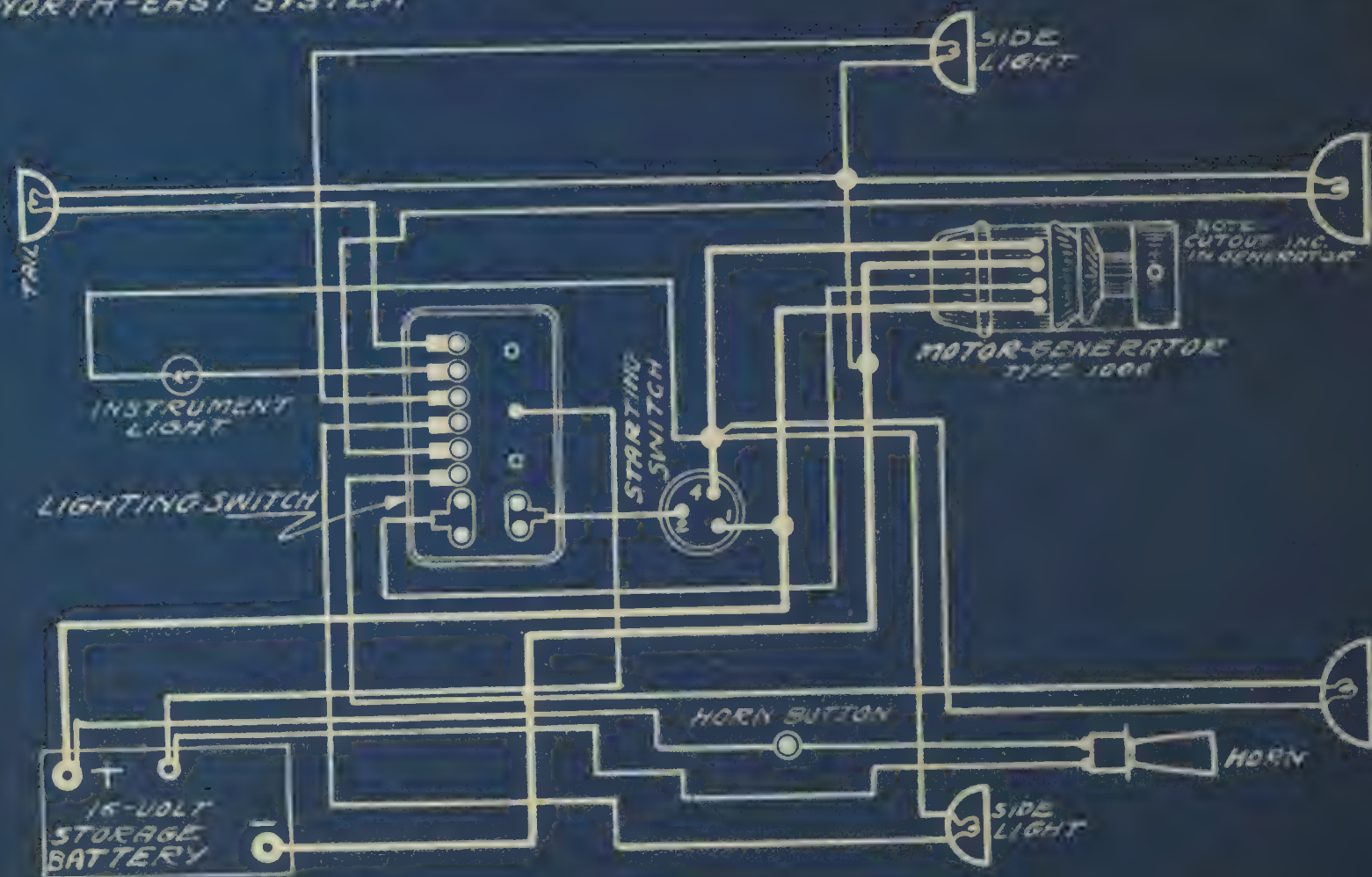
WIRING DIAGRAM

FORM NO. 10-1-162



MARMON 1913 "32-4"  
NORTH-EAST SYSTEM

FROM MFRS. PLATE 110

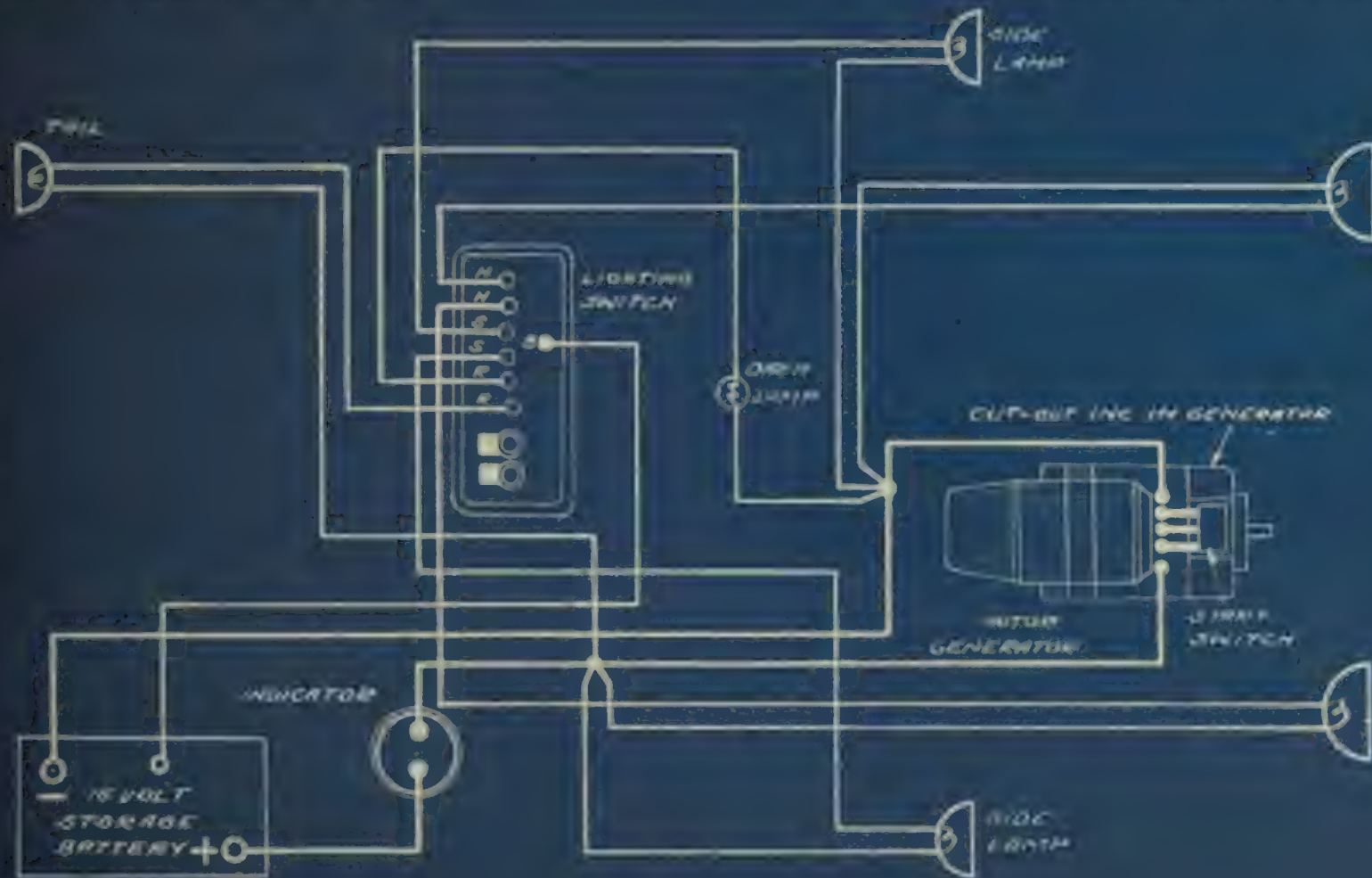




# MARMON 1913 48 1914 4/8 48

## NORTH-EAST SYSTEM

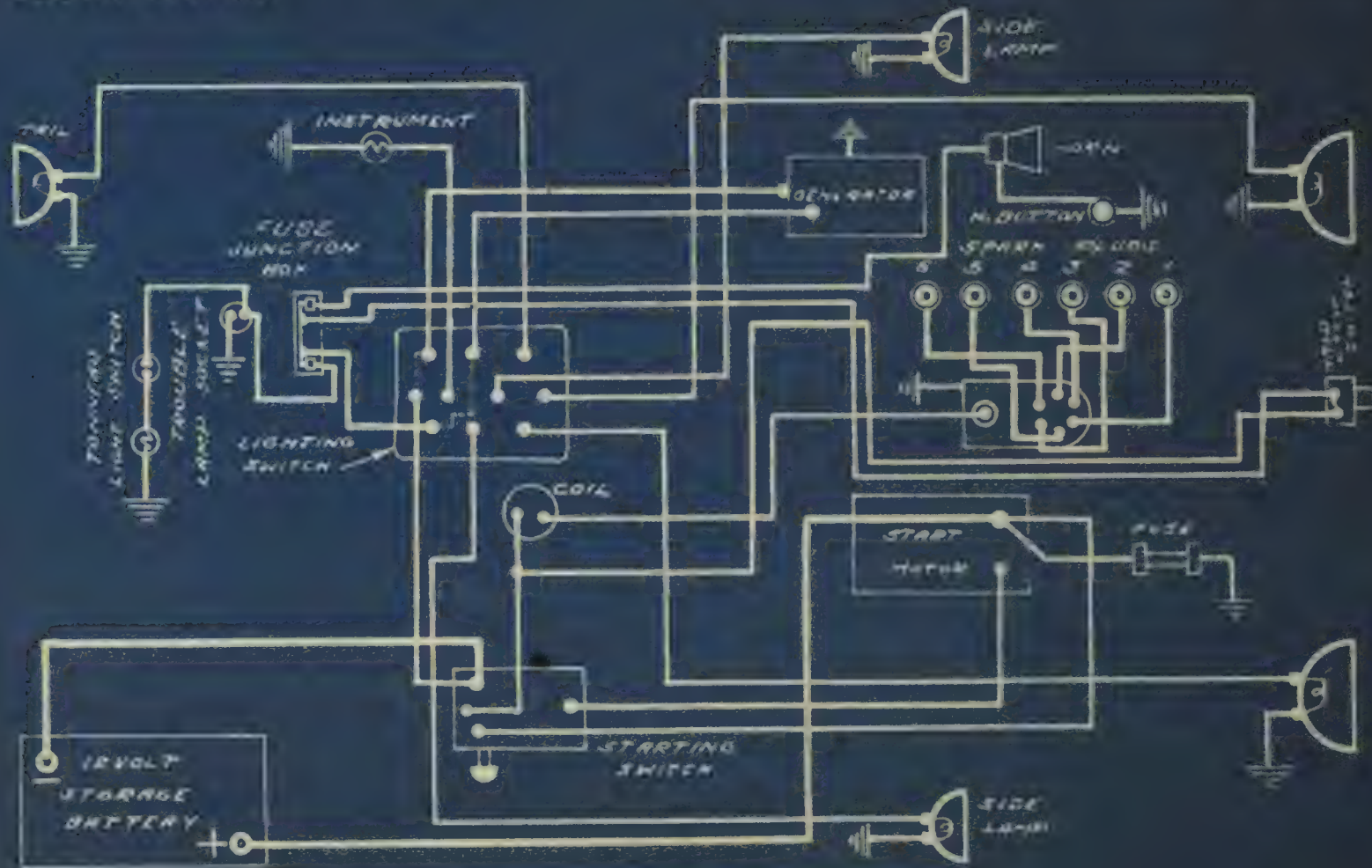
FROM N-E, PLATES 250-260



MARMON  
BOSCH SYSTEM

1915 - 41-

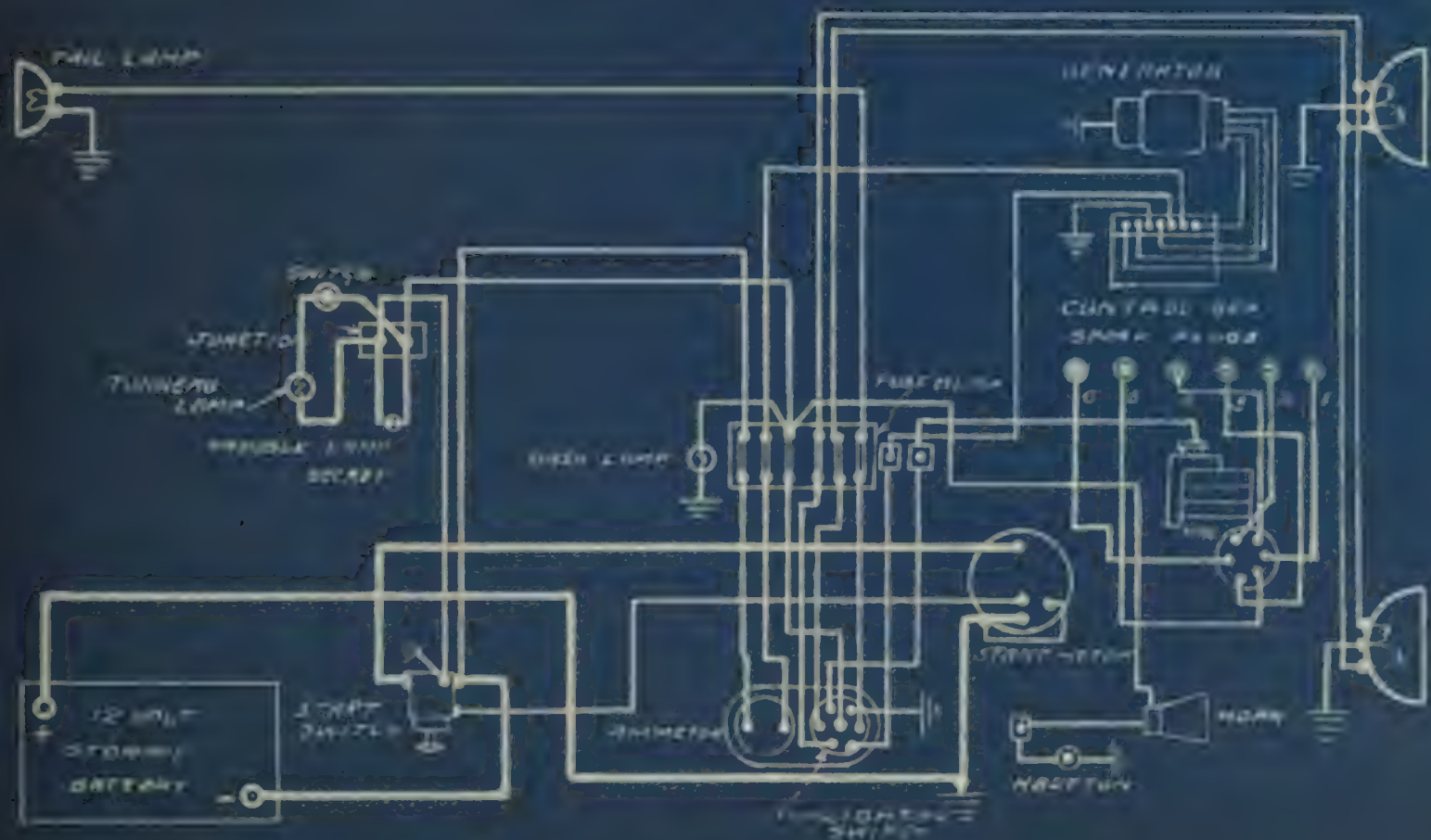
SCHEMATIC SKETCH BY G.E.



# MARMON 34 1916-1917

BOSCH SYSTEM

WIRE DIAGRAM

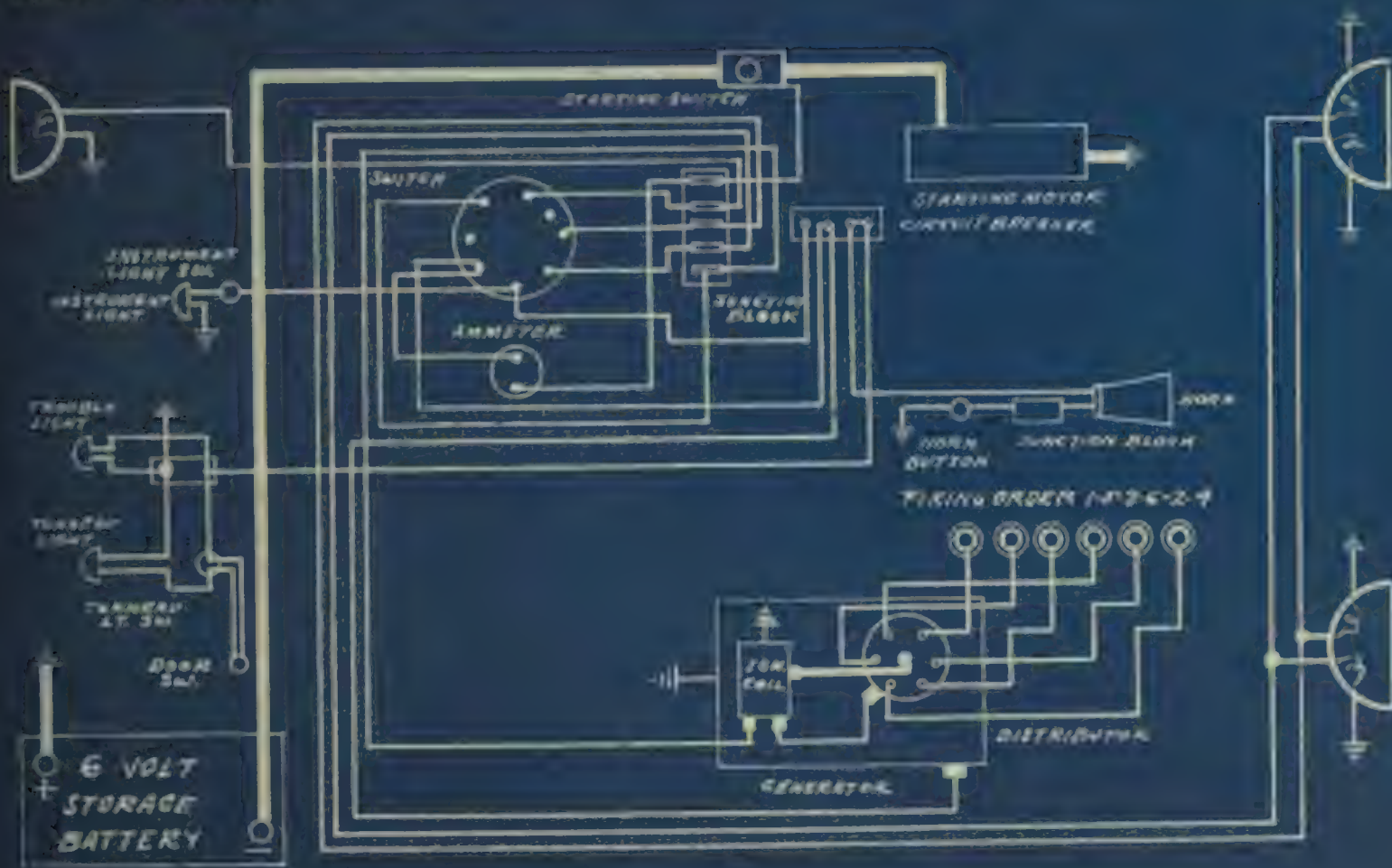






# MARMON 34 1920 DELCO SYSTEM

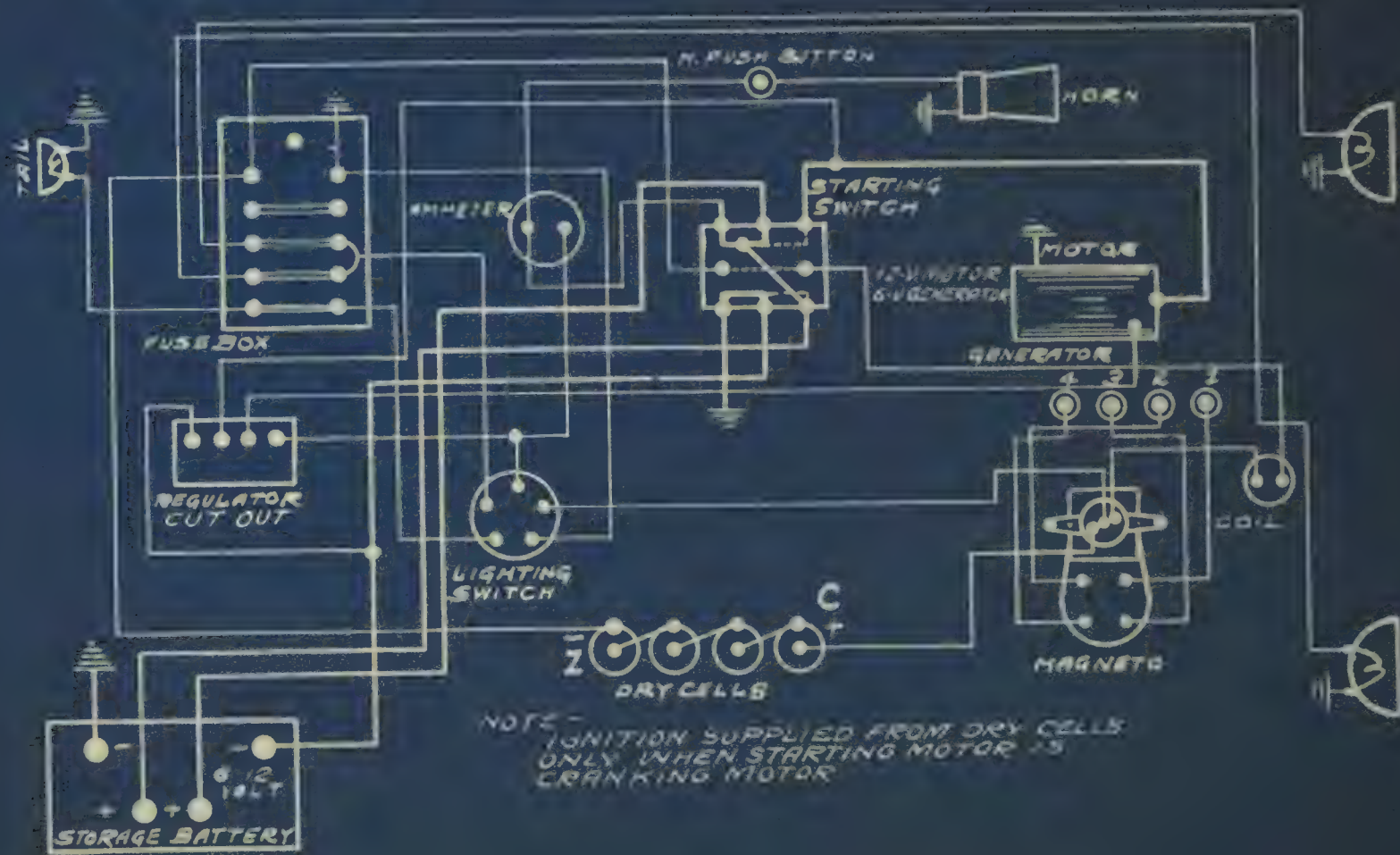
FROM MFRS BPM 29635



# MAXWELL 1914-15

SIMMS-HUFF SYSTEM

FROM SIMMS-HUFF BULLETIN

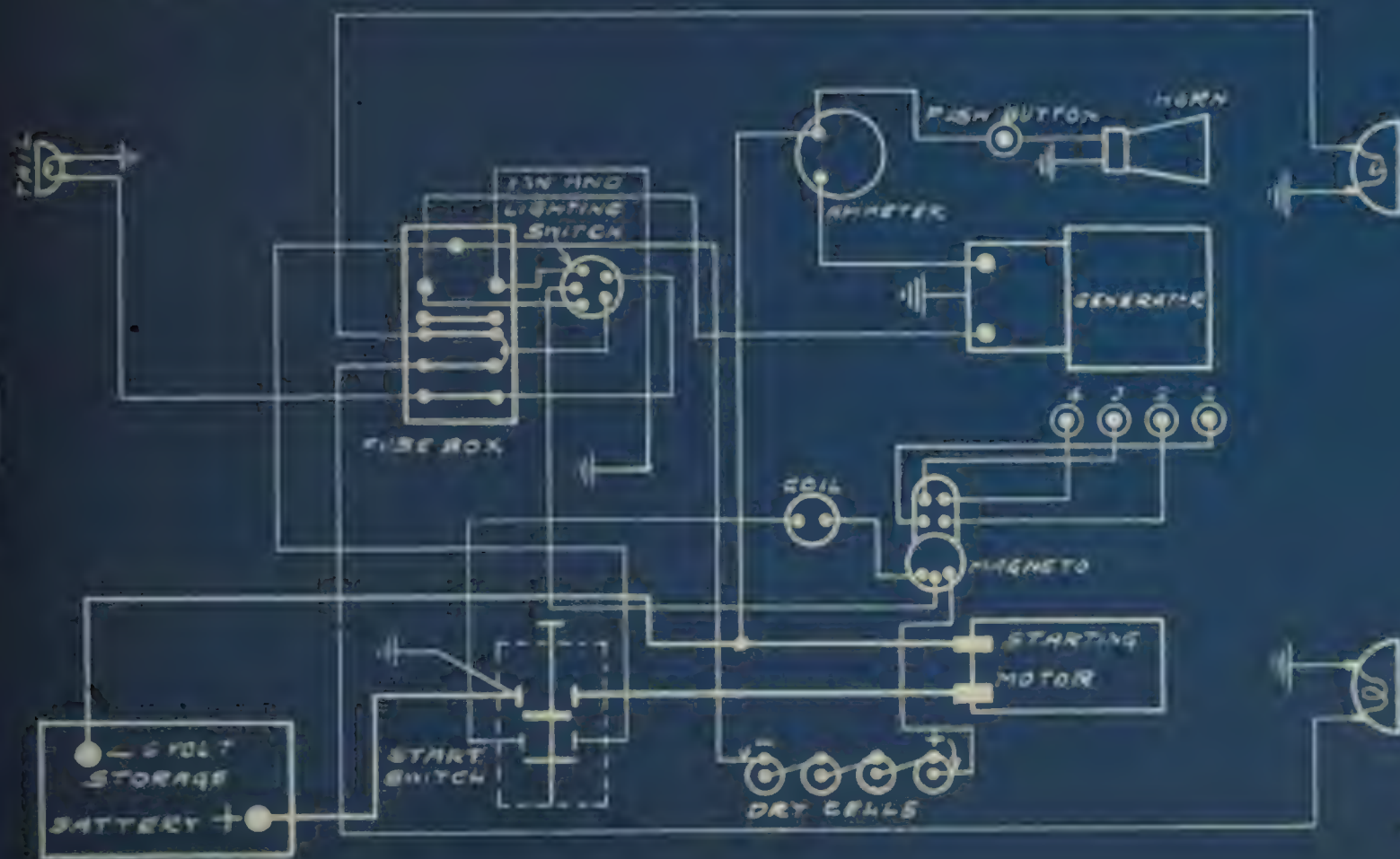




# MAXWELL 1915

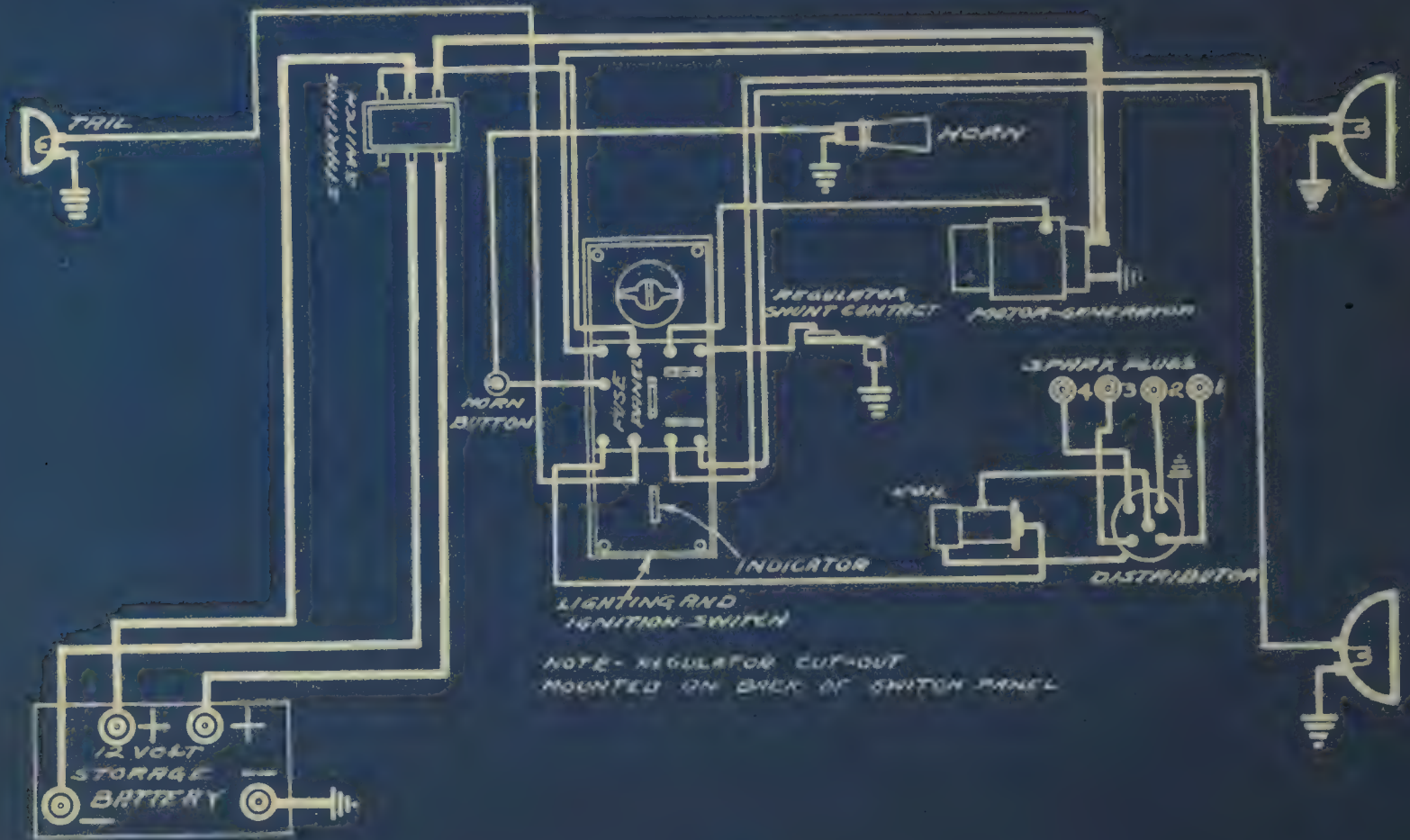
## GRAY & DAVIS SYSTEM

FROM G&D INSTRUCTION BOOK



# MAXWELL 1917 MODEL 25 SIMMS-HUFF SYSTEM

FROM S.H. PLATE

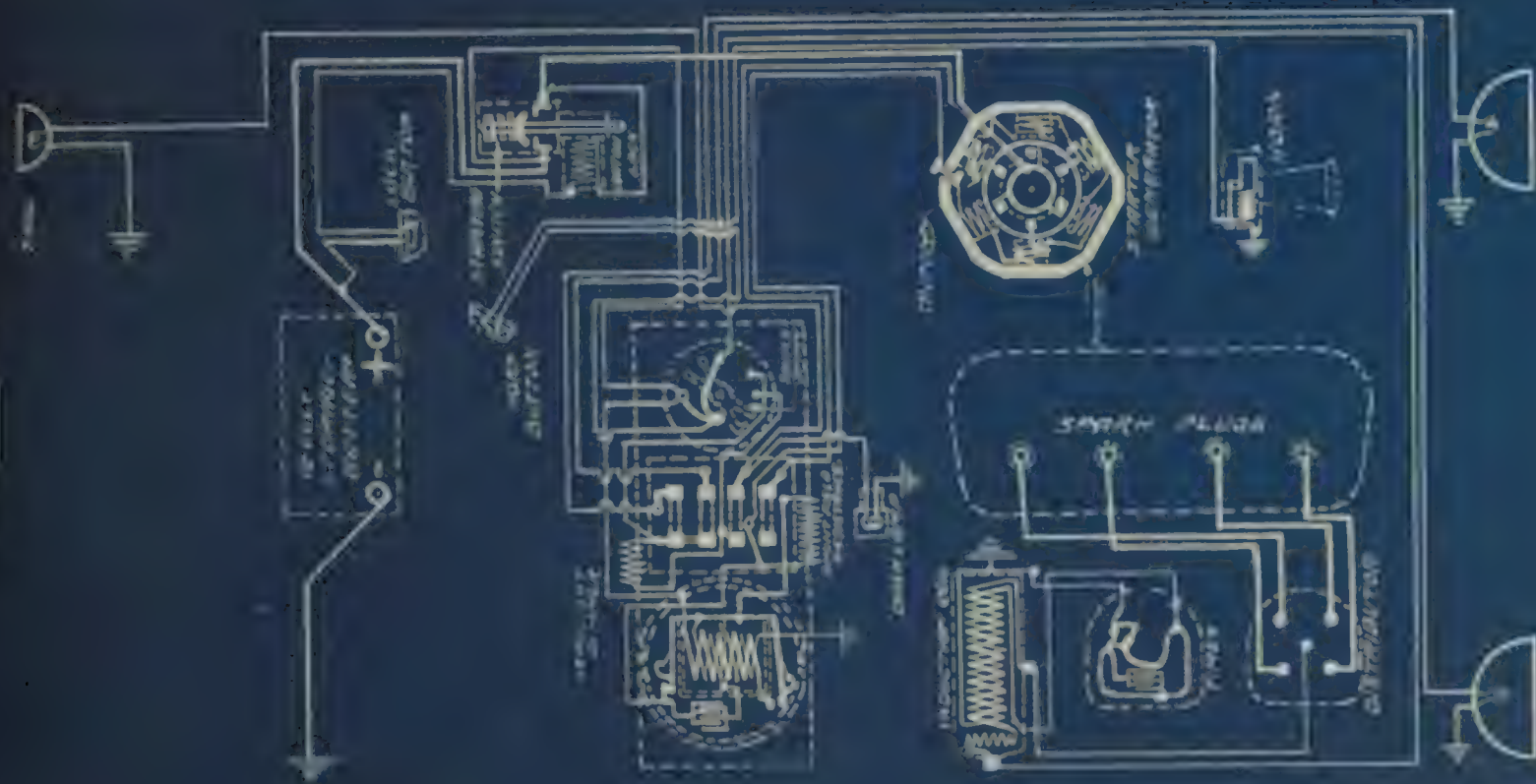


# MAXWELL 1918-1919 "25"

## SIMMS-HUFF SYSTEM — SIMMS MAGNETO IGNITION

FROM MAXWELL MANUAL

Copyright 1918 by  
Maxwell Publishing Co.  
All rights reserved.

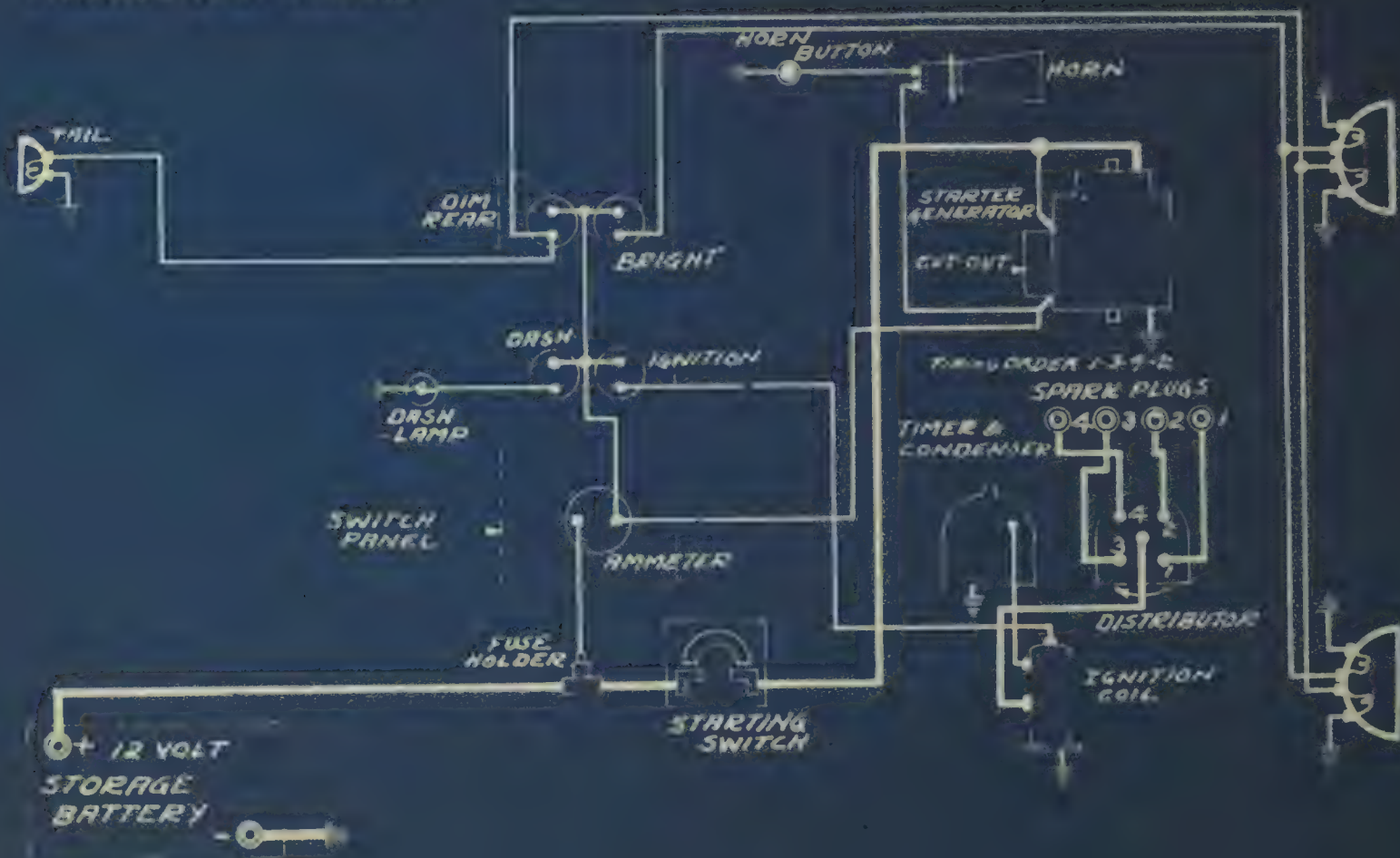




# MAXWELL 1920

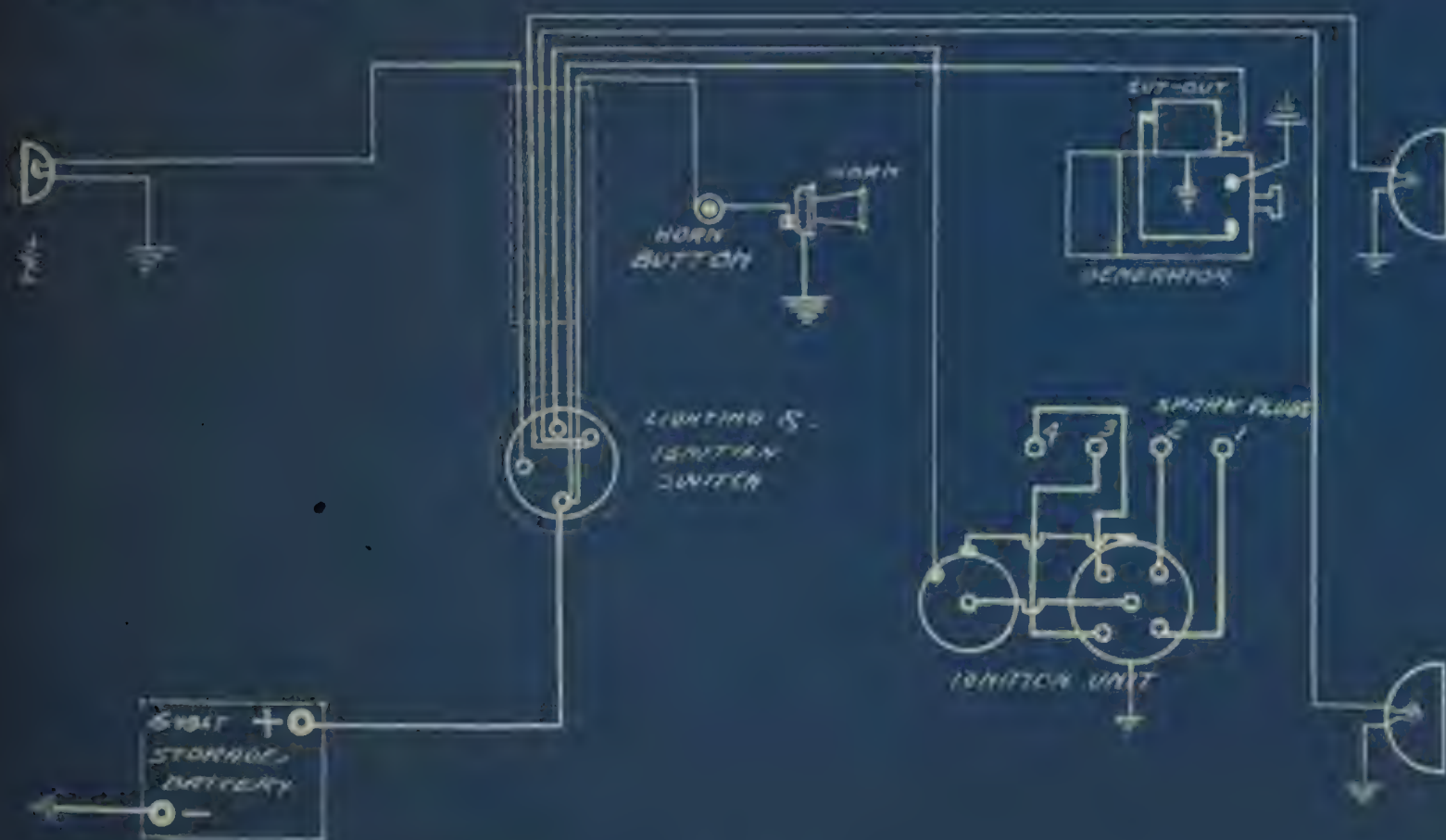
SIMMS HUFF SYSTEM  
ATWATER KENT IGNITION

TRAFFICMASTER DRAWING



# MAXWELL ONE-TON TRUCK AUTOLITE SYSTEM

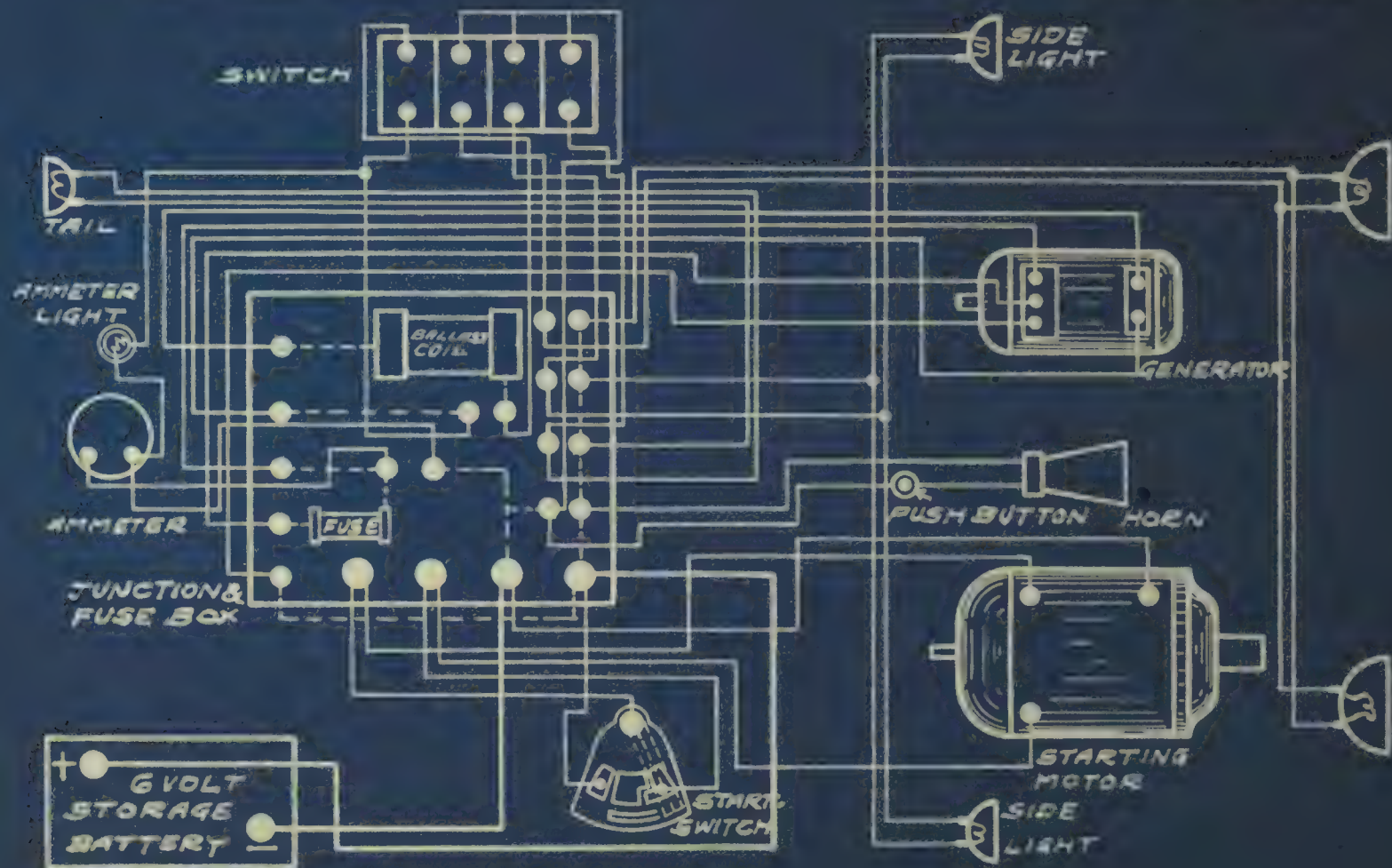
FROM MAXWELL MANUAL



# MERCER 1914 "35"

RUSHMORE SYSTEM

FROM MFRS. B/P 2499

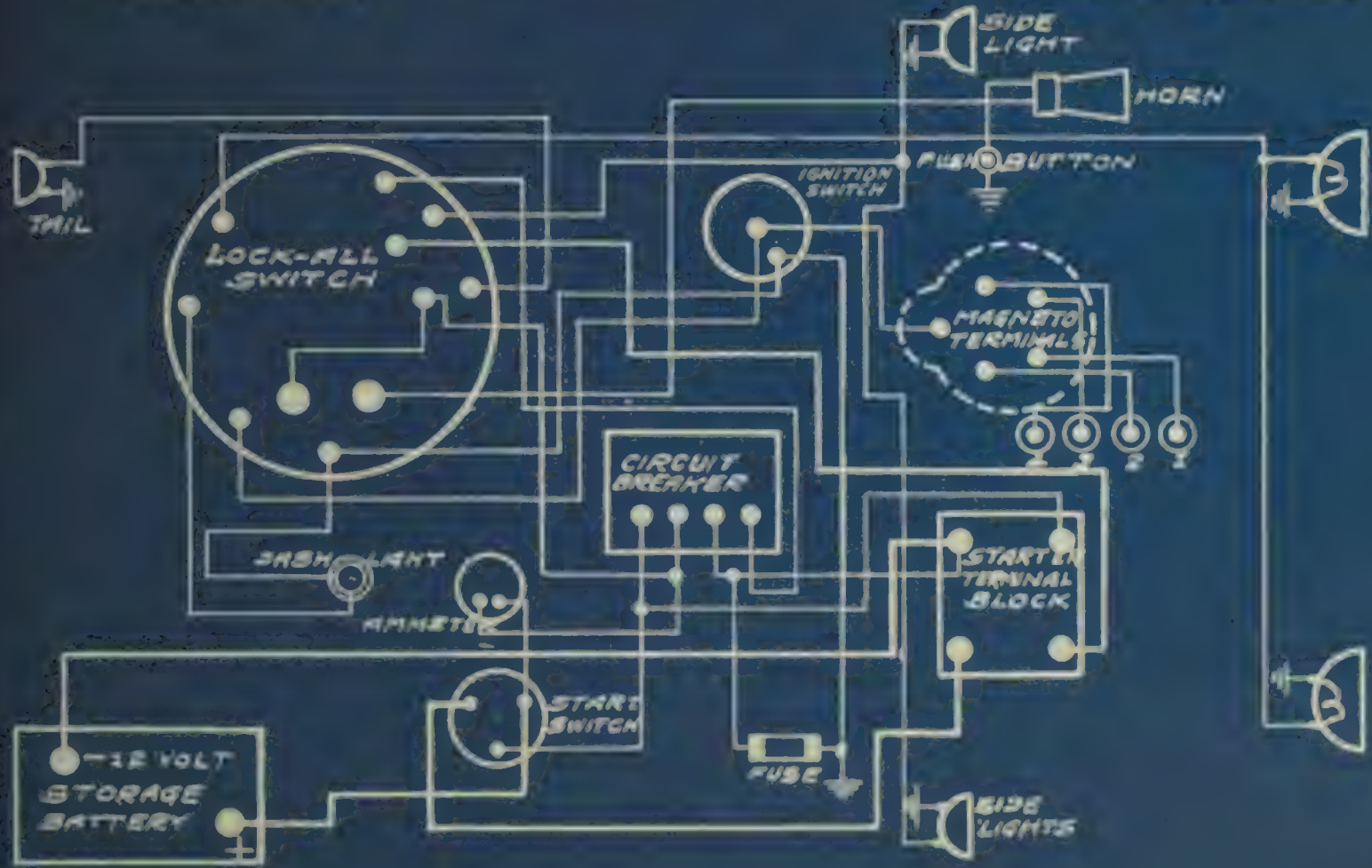




# MERCER 1915 22-70

U.S. SYSTEM

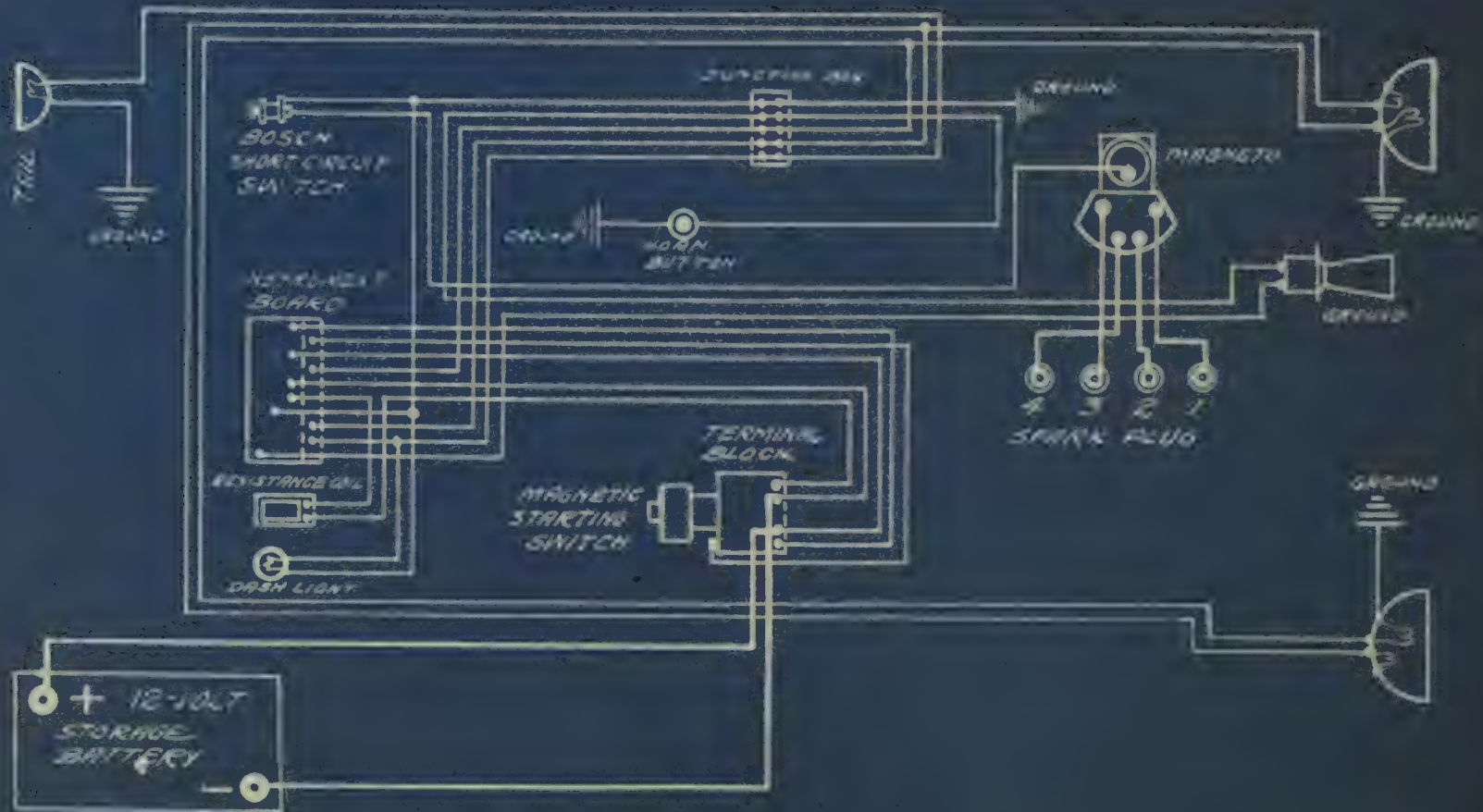
FROM HERE S/P 20252



# MERCER 1916 "22-70"

U.S.L. SYSTEM

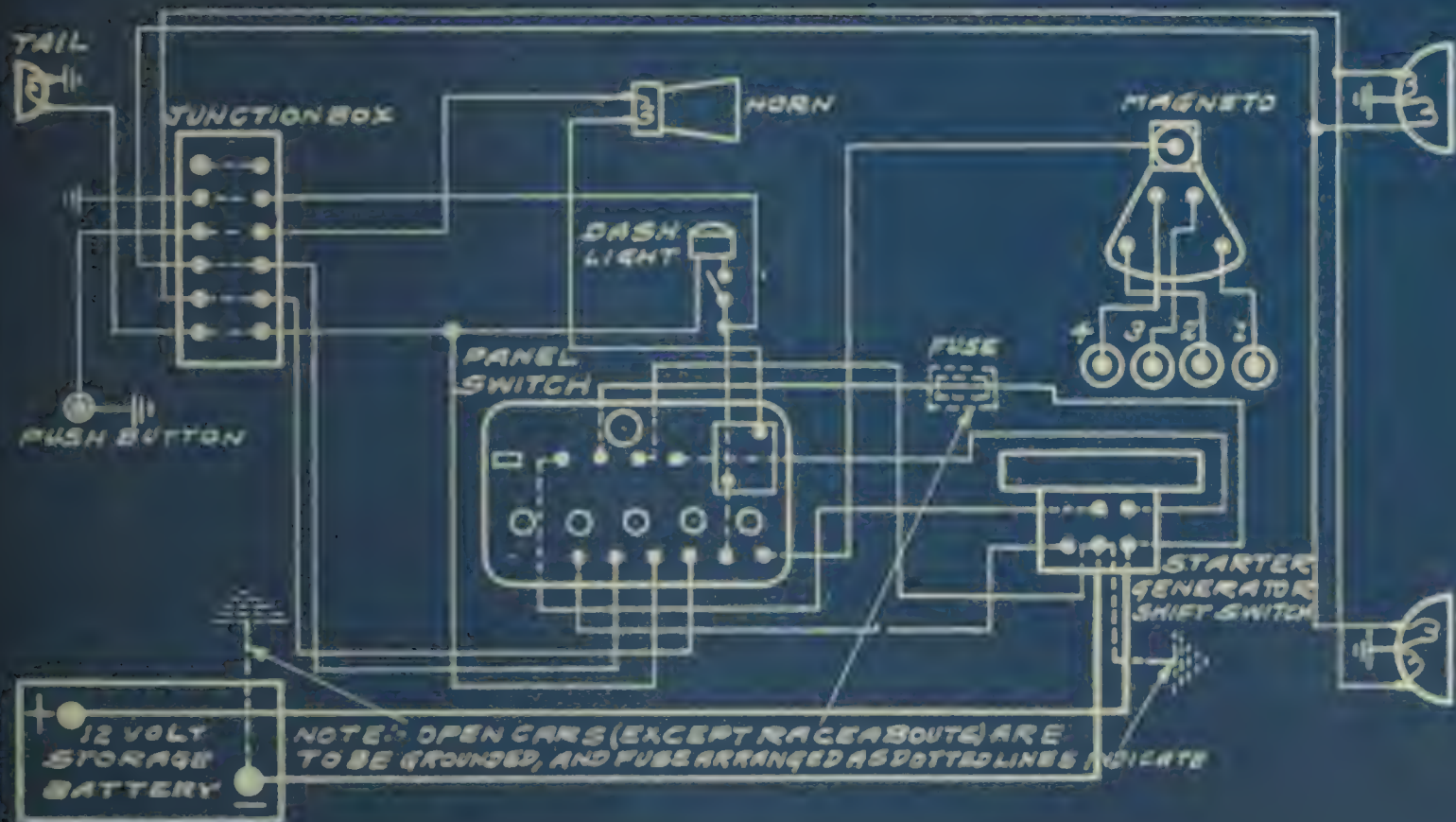
FROM U.S.L. MANUAL



# MERCER 1917-18 22-73

U.S.L. SYSTEM

FROM MFRS. B/P DI-3 & DI-4





22 274

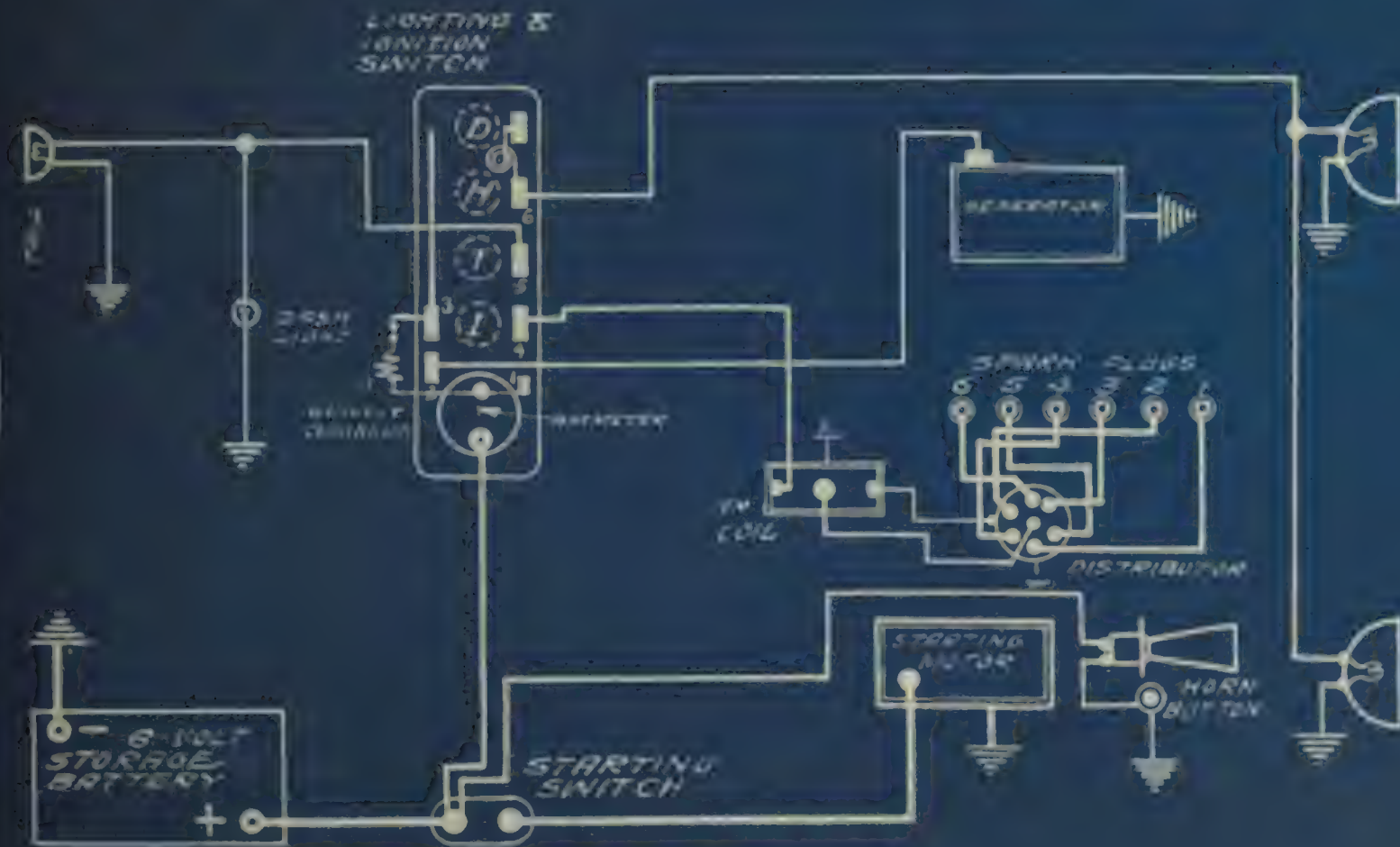
## WESTINGHOUSE SYSTEM



# METEOR 1917 DELCO SYSTEM

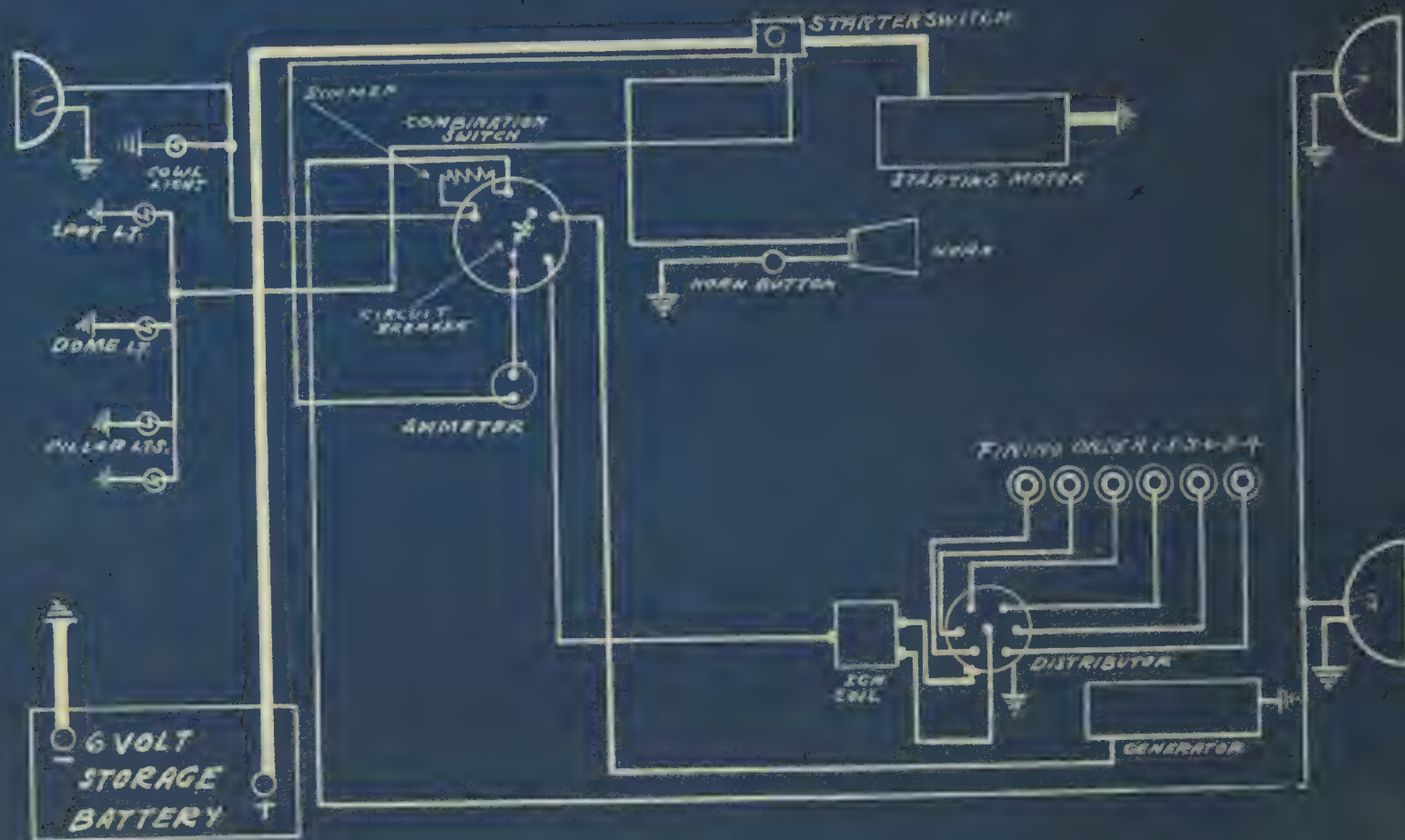
75-80

FROM DELCO MANUAL



# METEOR 1920 DELCO SYSTEM

FROM MERS INST. BOOK



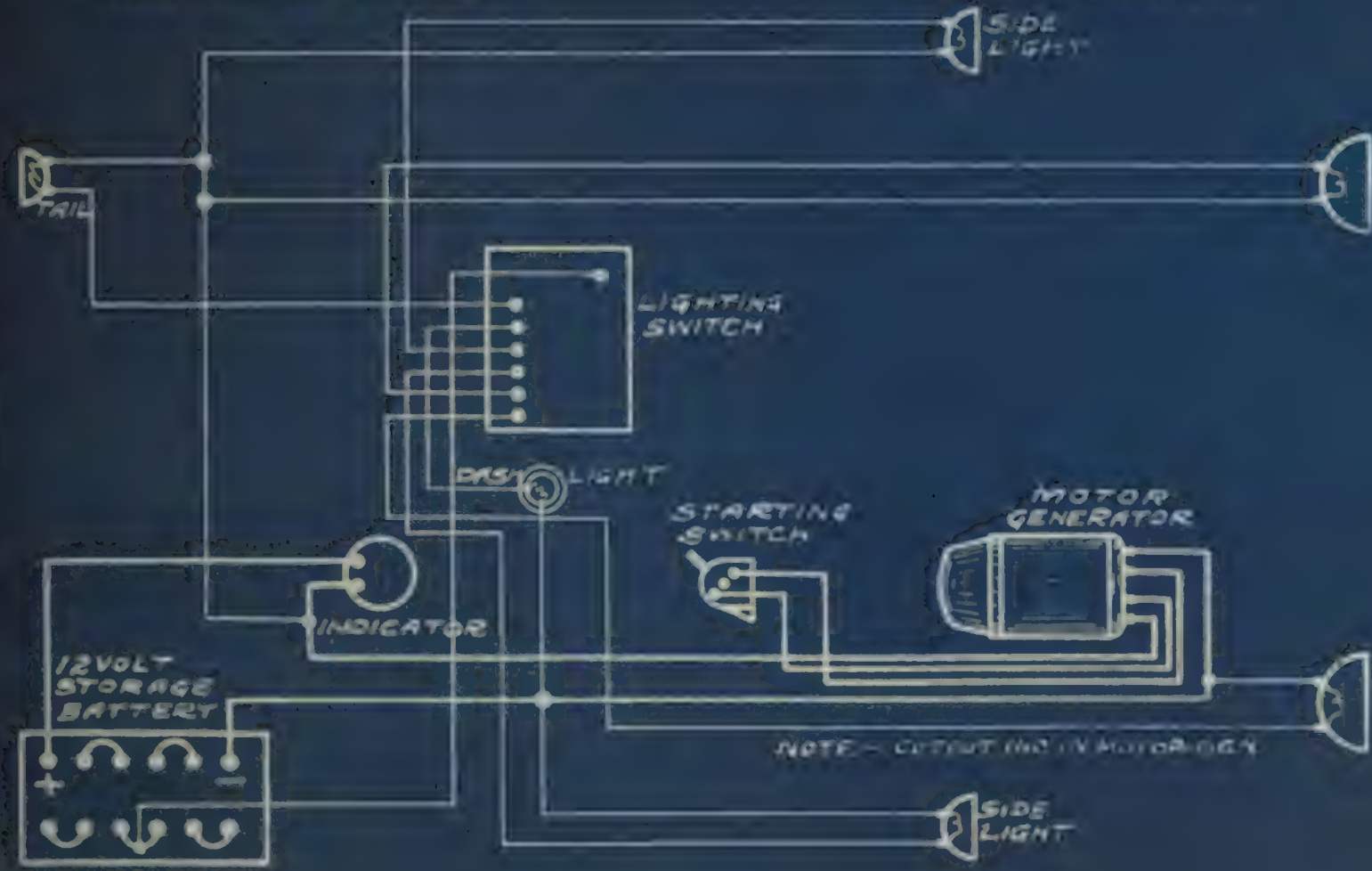


# METZ 1914 "22"

NORTHEAST SYSTEM

FROM NE PLATE 300

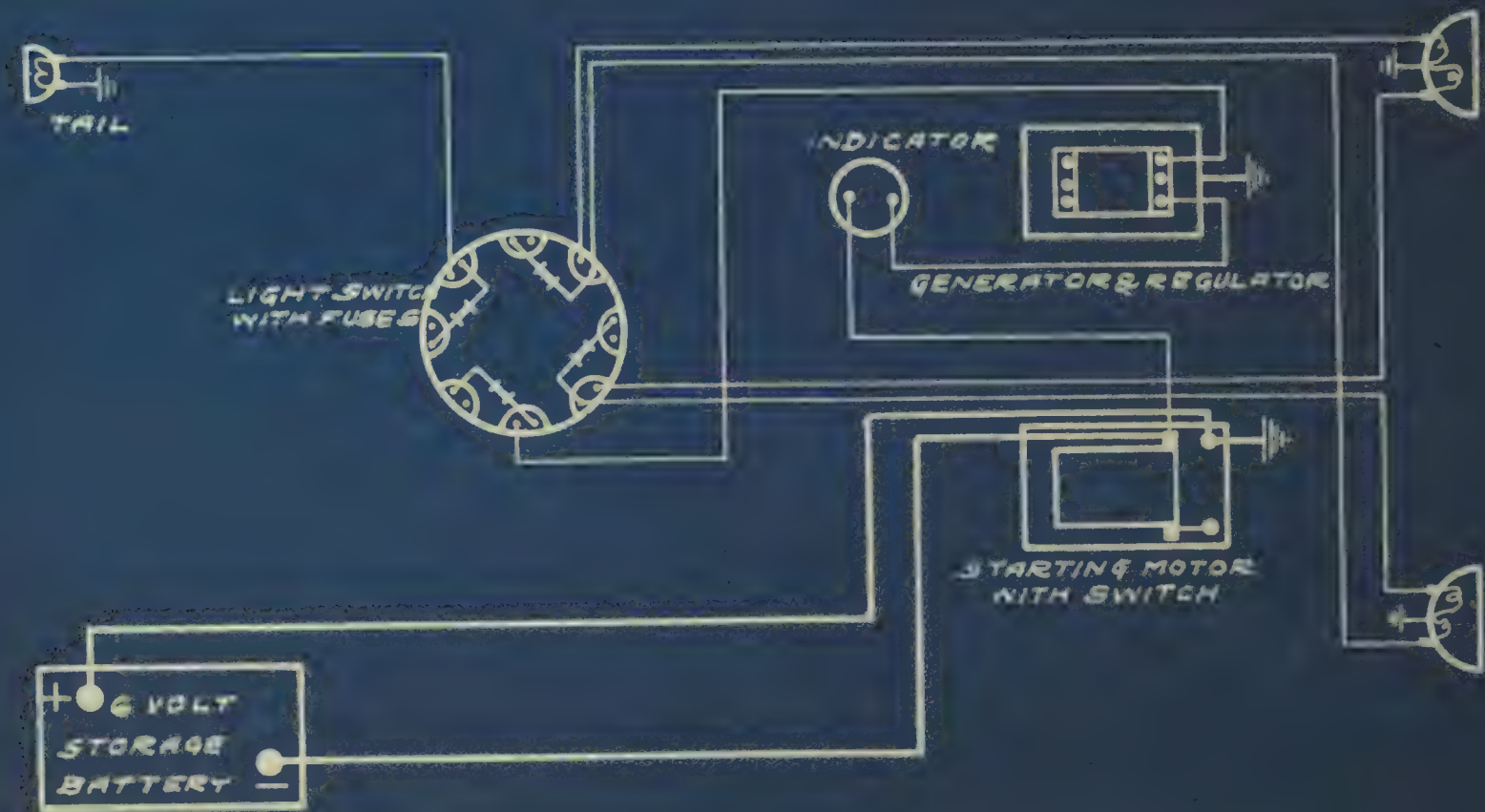
Copyright 1914 by Metz Engineering Co. All rights reserved.



METZ 1915-16-17  
GRAY & DAVIS SYSTEM

-22825-

FROM METZ 25 INST. BOOK.

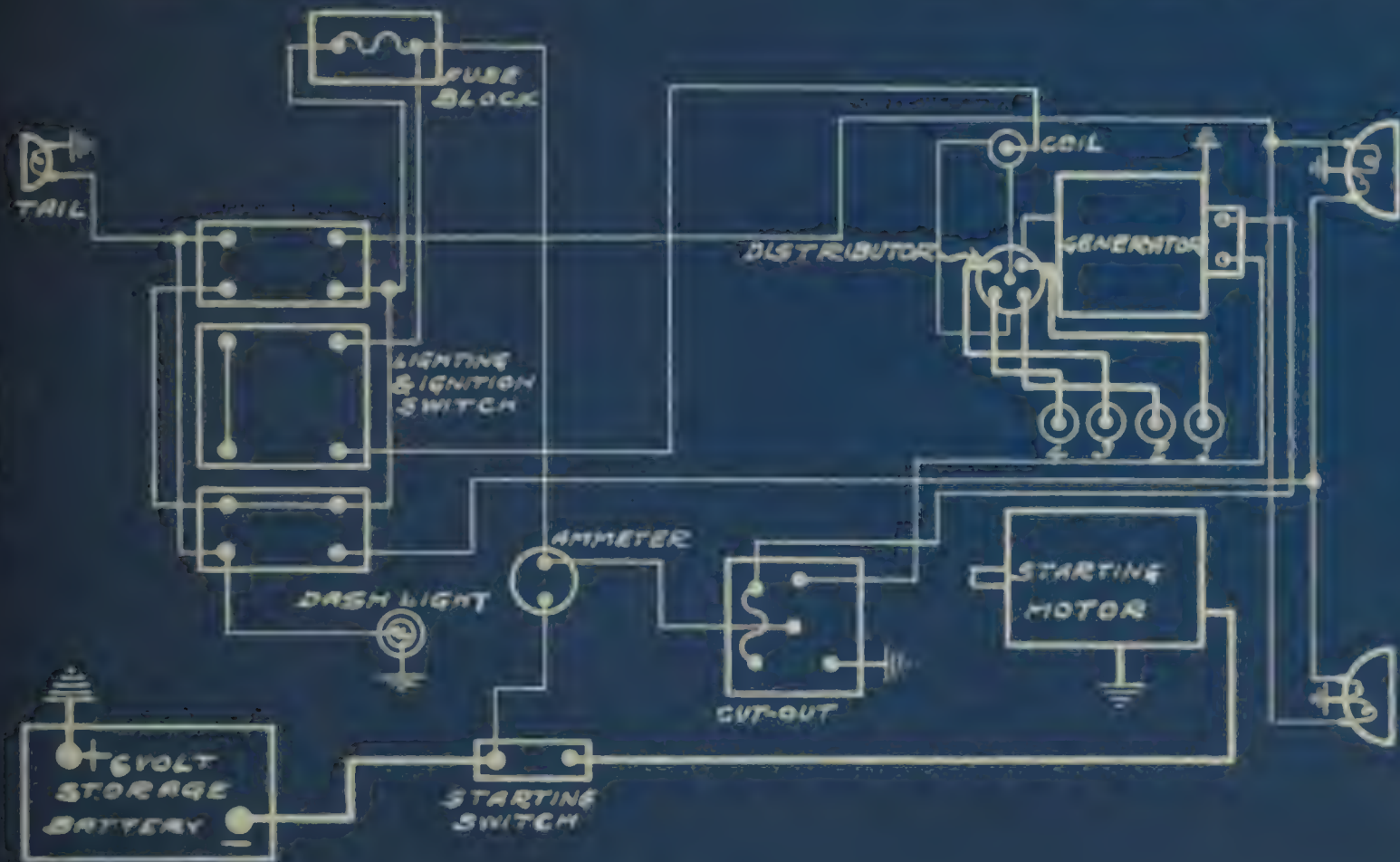


Automotive Publishing Co.  
CHICAGO, ILL. U.S.A.

# METZ 1917-18 "G"

WESTINGHOUSE SYSTEM

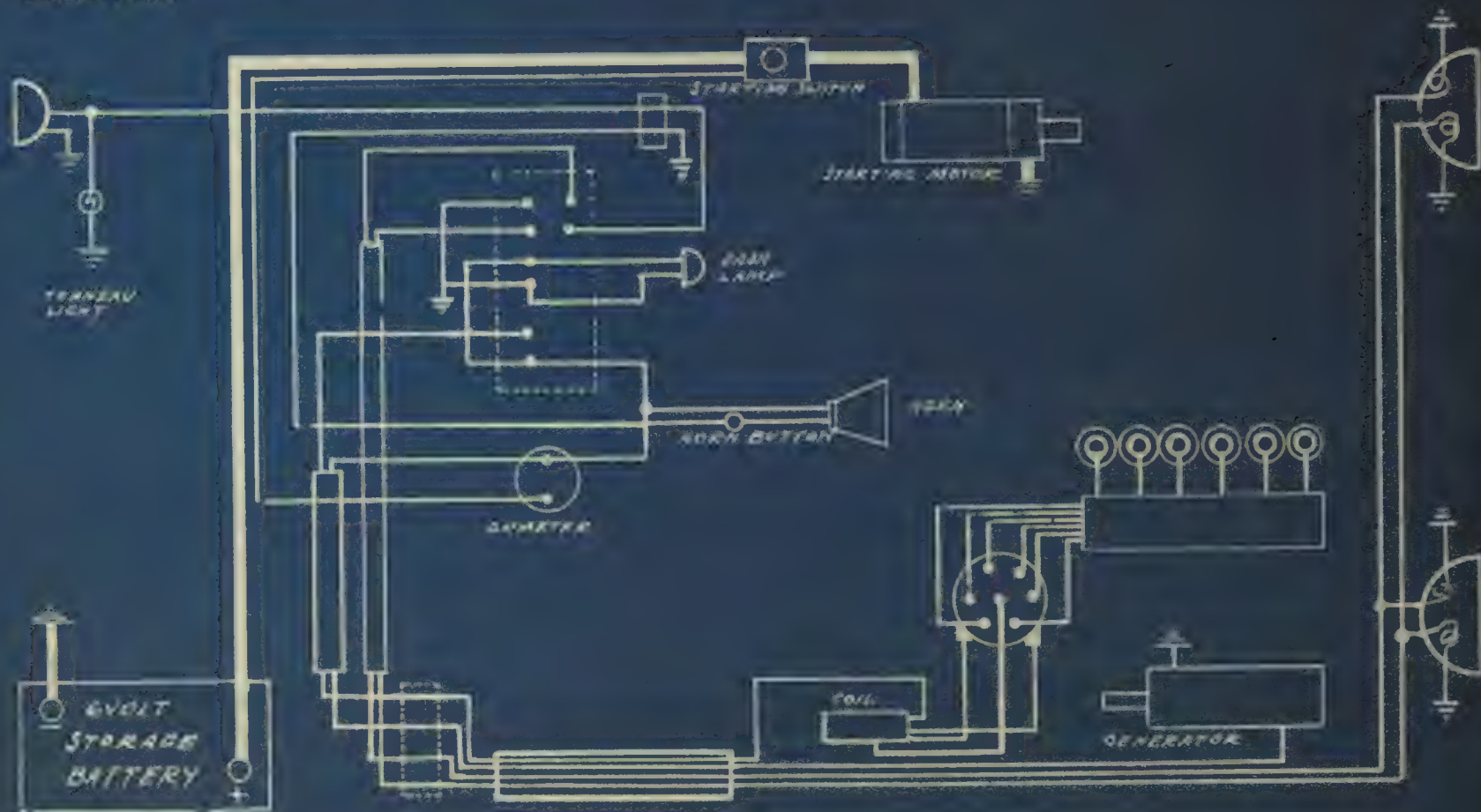
FROM MFRS B/PG-1400





*METZ "MASTER SIX" 1920  
WESTINGHOUSE START & LIGHT  
CONN. IGH.*

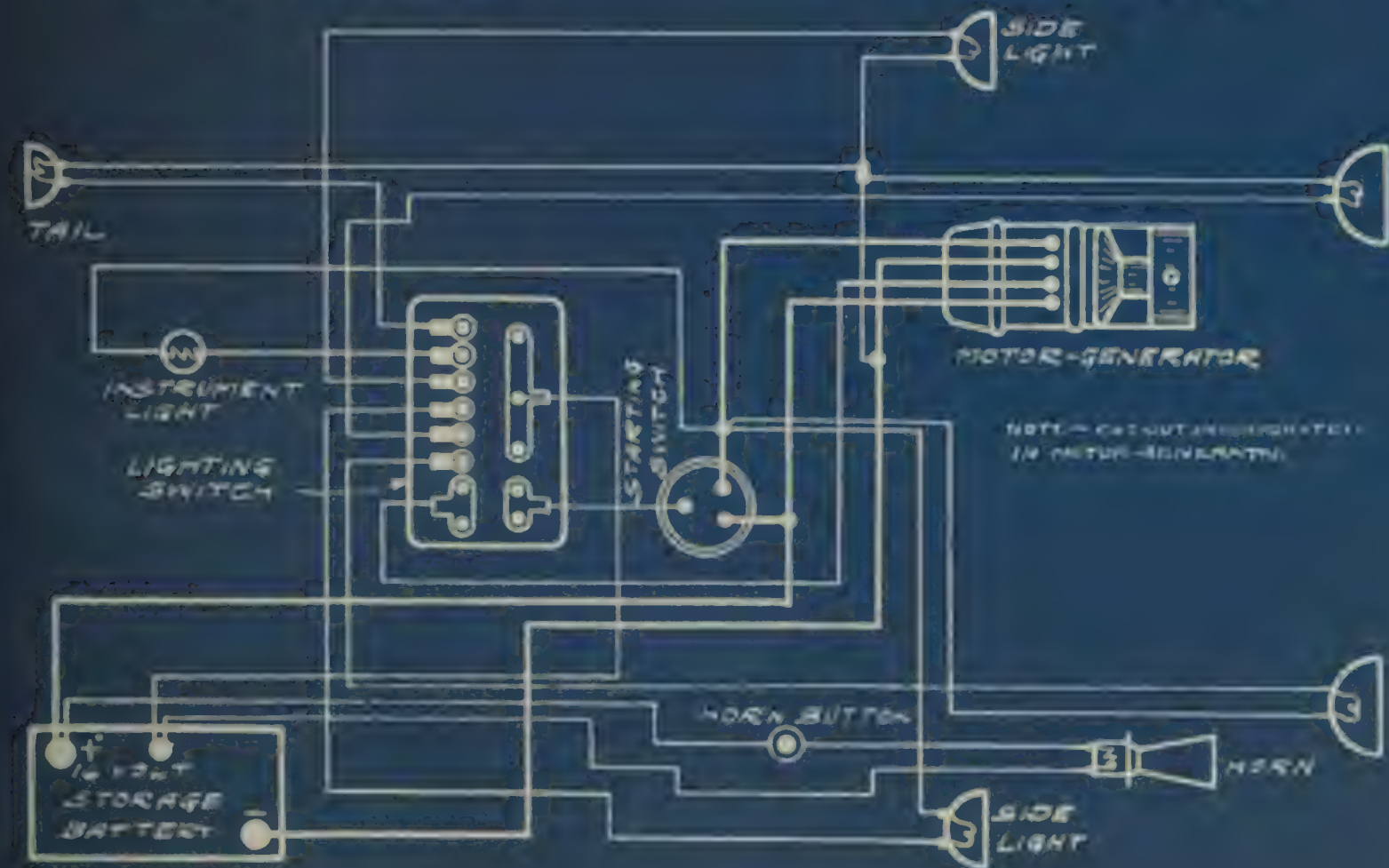
*FROM WIRE INST. BOOK*



# MICHIGAN 1913

## NORTHEAST SYSTEM

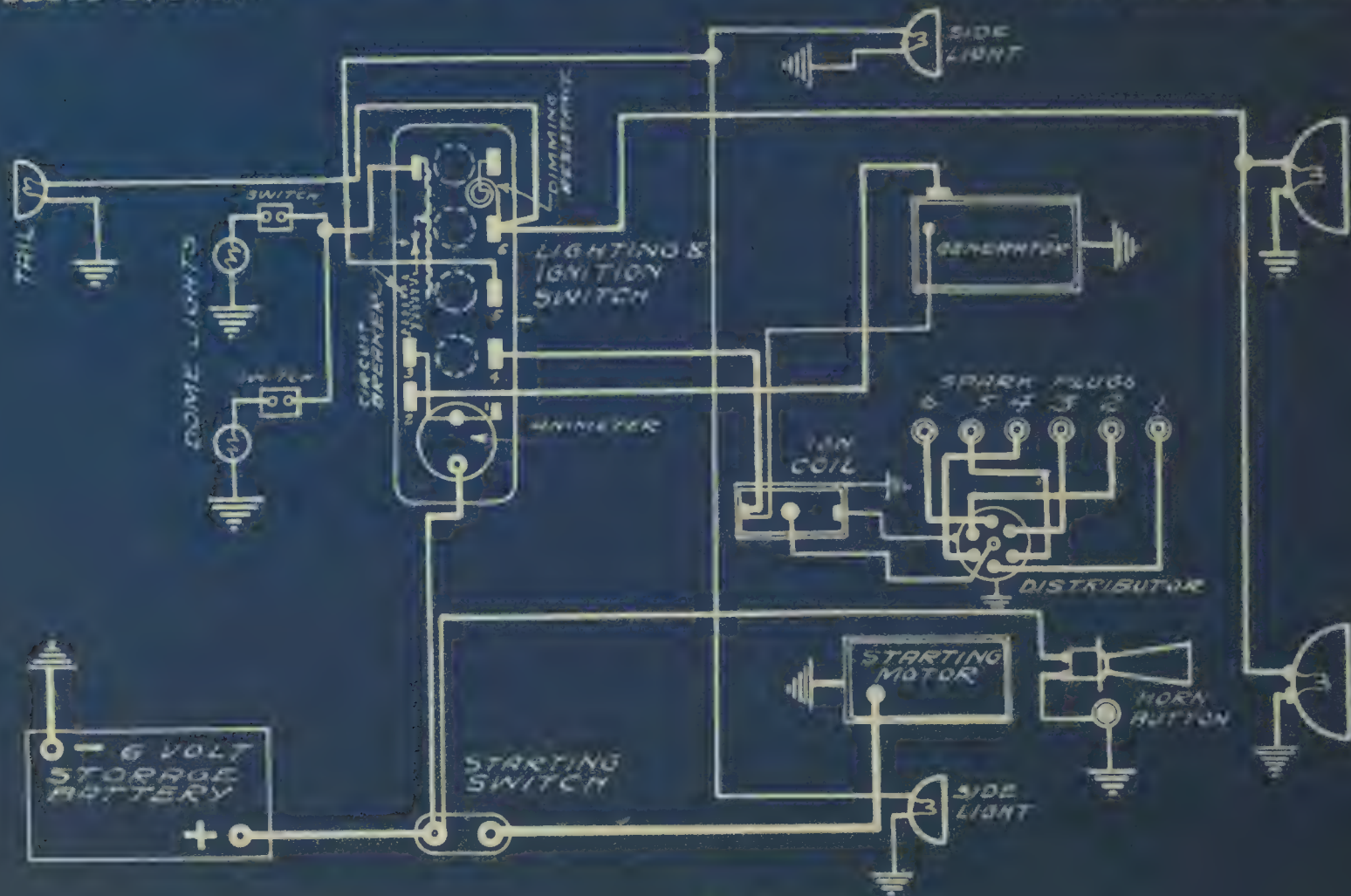
FROM N-E PLATE 120



# MICHIGAN HEARSE AND MOTORS COMPANY 1917

DELCO SYSTEM

FROM DELCO MANUAL



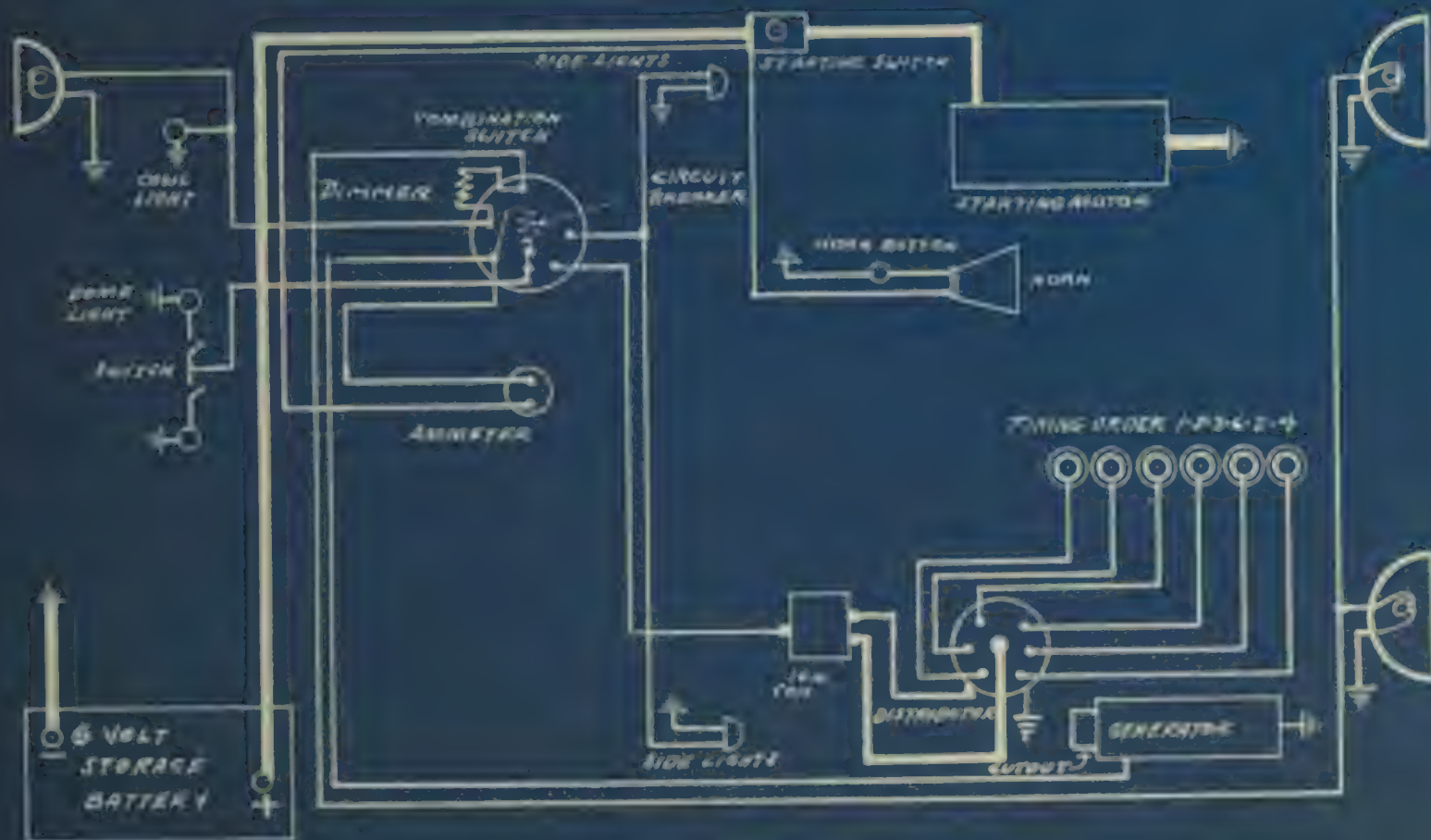
CONTRACTED BY  
MICHIGAN HEARSE AND MOTORS CO.  
LANSING, U. S. A.



# MICHIGAN HEARSE 1920

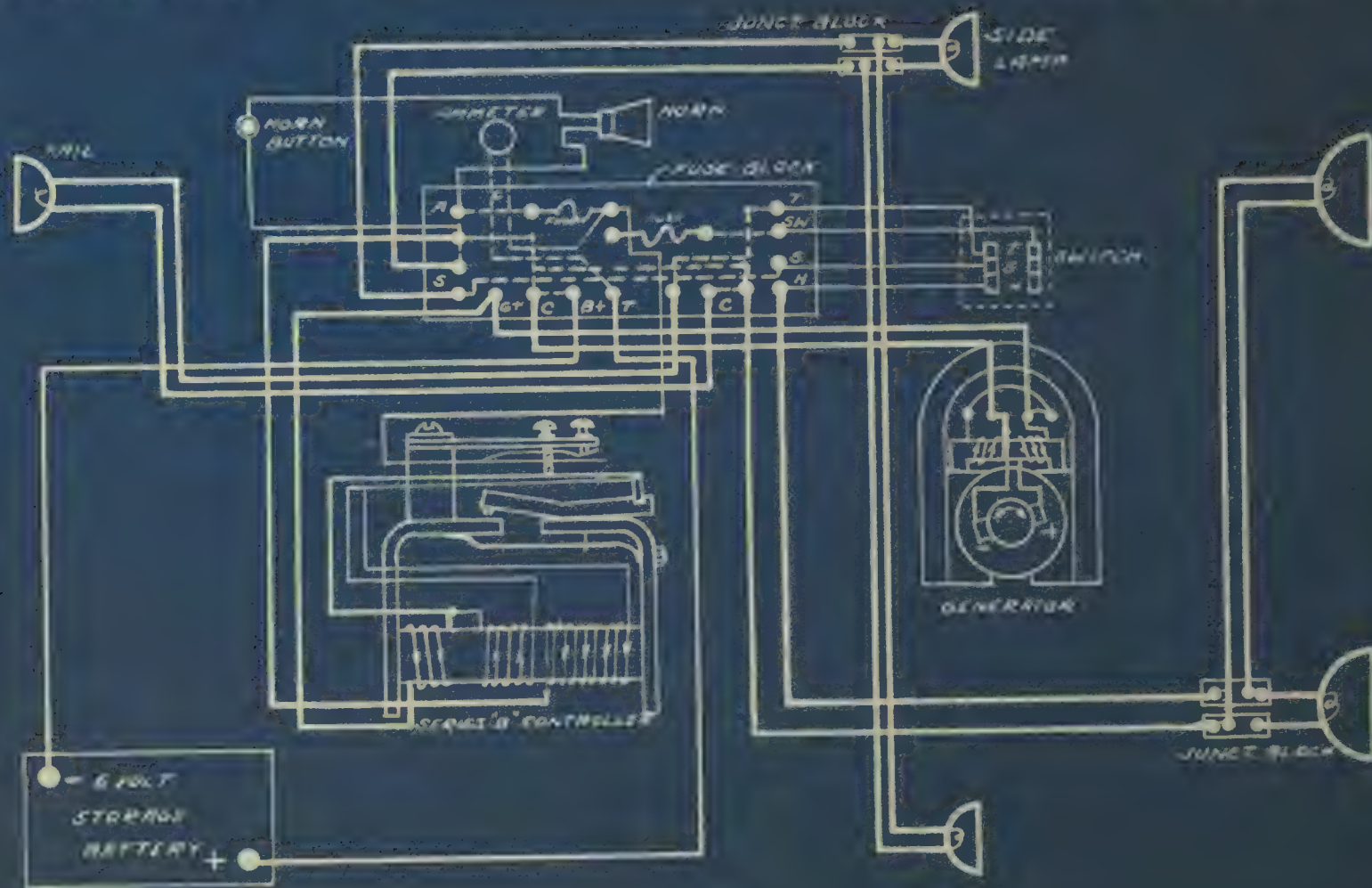
## DELCO SYSTEM

FROM MFRS INST BOOK



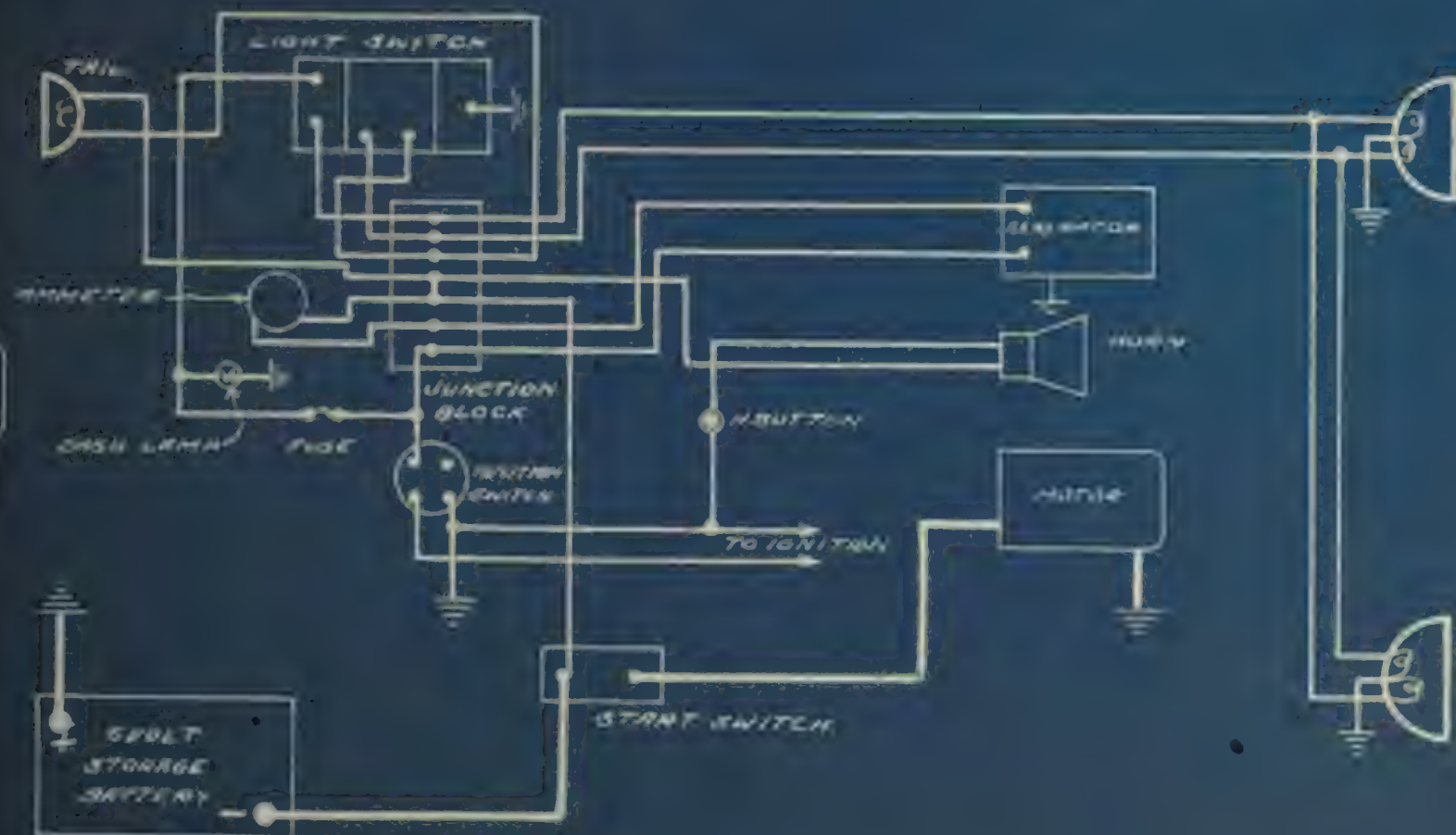
# MITCHELL 1913

WIRE PATENTING 47 1140



# MITCHELL 1916 "8" WESTINGHOUSE SYSTEM

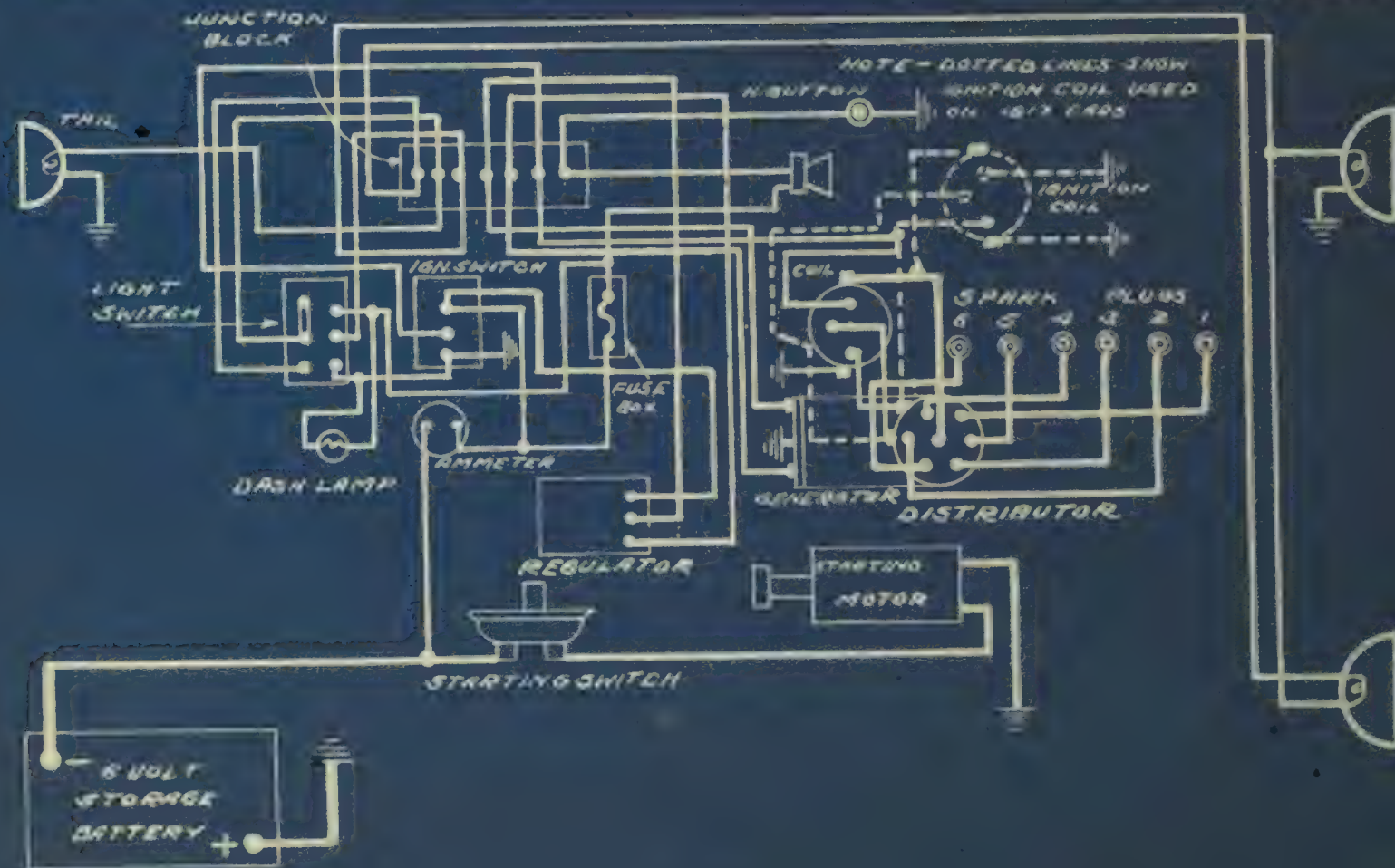
FROM WEST PLATE B5.





# MITCHELL 1917-1918 C42 WESTINGHOUSE SYSTEM

FROM MFRS B.P. TX 2070  
TX 2044

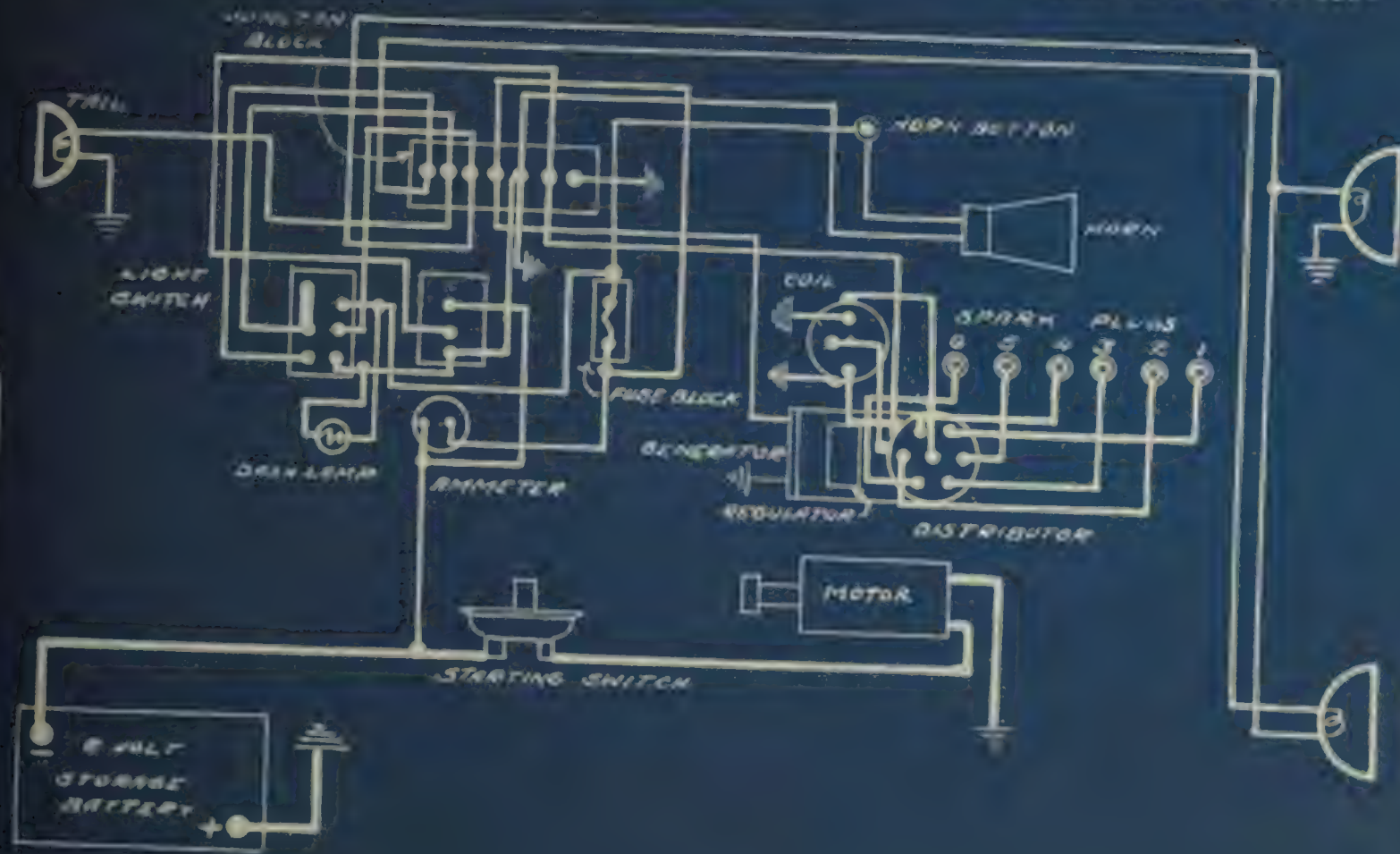


# MITCHELL MODEL D-40

1917-18-19

SPARKING SYSTEM - CONVENTIONAL IGNITION

FROM HOW TO BUILD

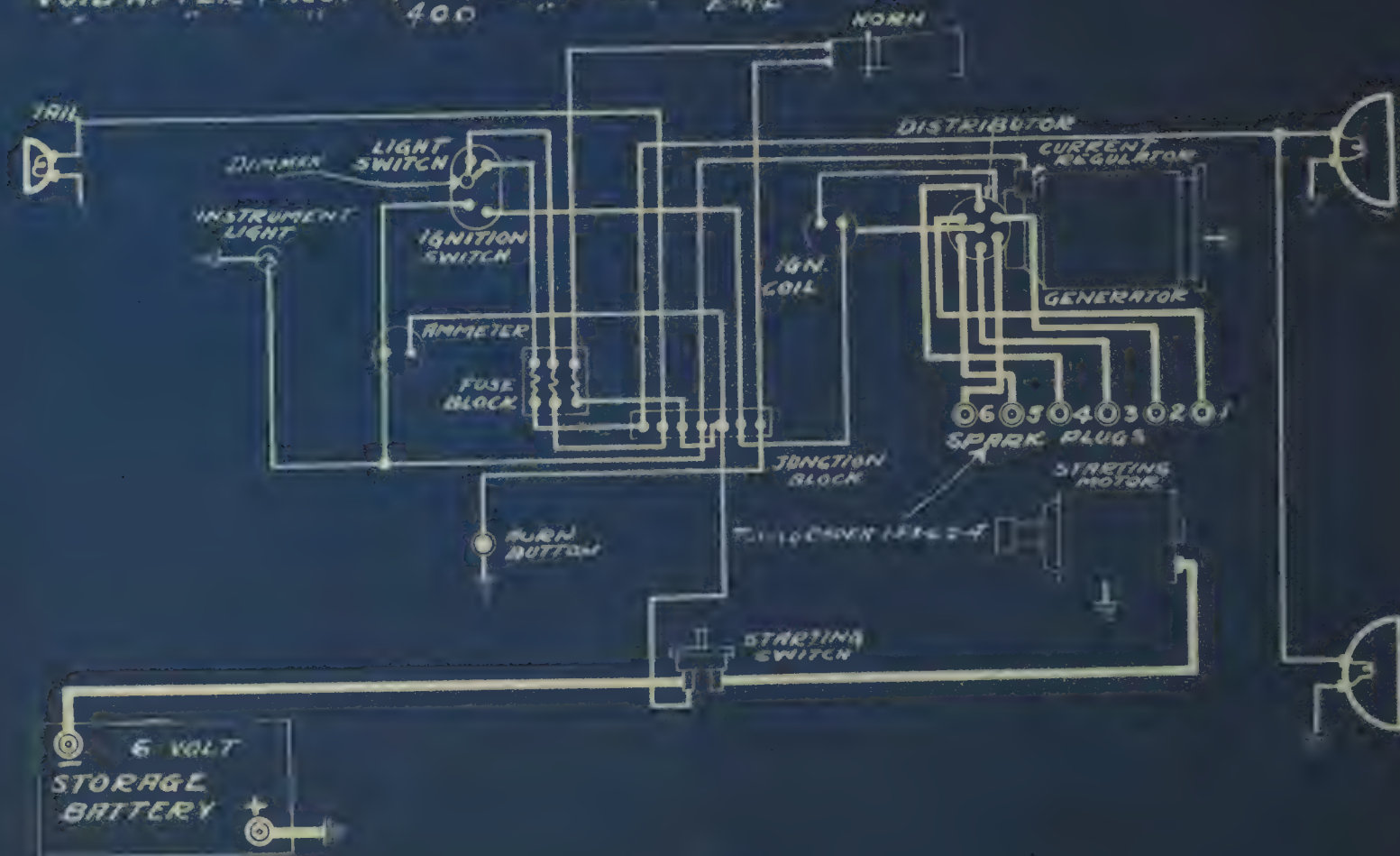


# MITCHELL EARLY 1919

REMY SYSTEM

VOID AFTER FIRST 4000 CARS MODEL E-40  
400 " " " " E-42

FRONT VIEW OF WIRE T.A. 2087

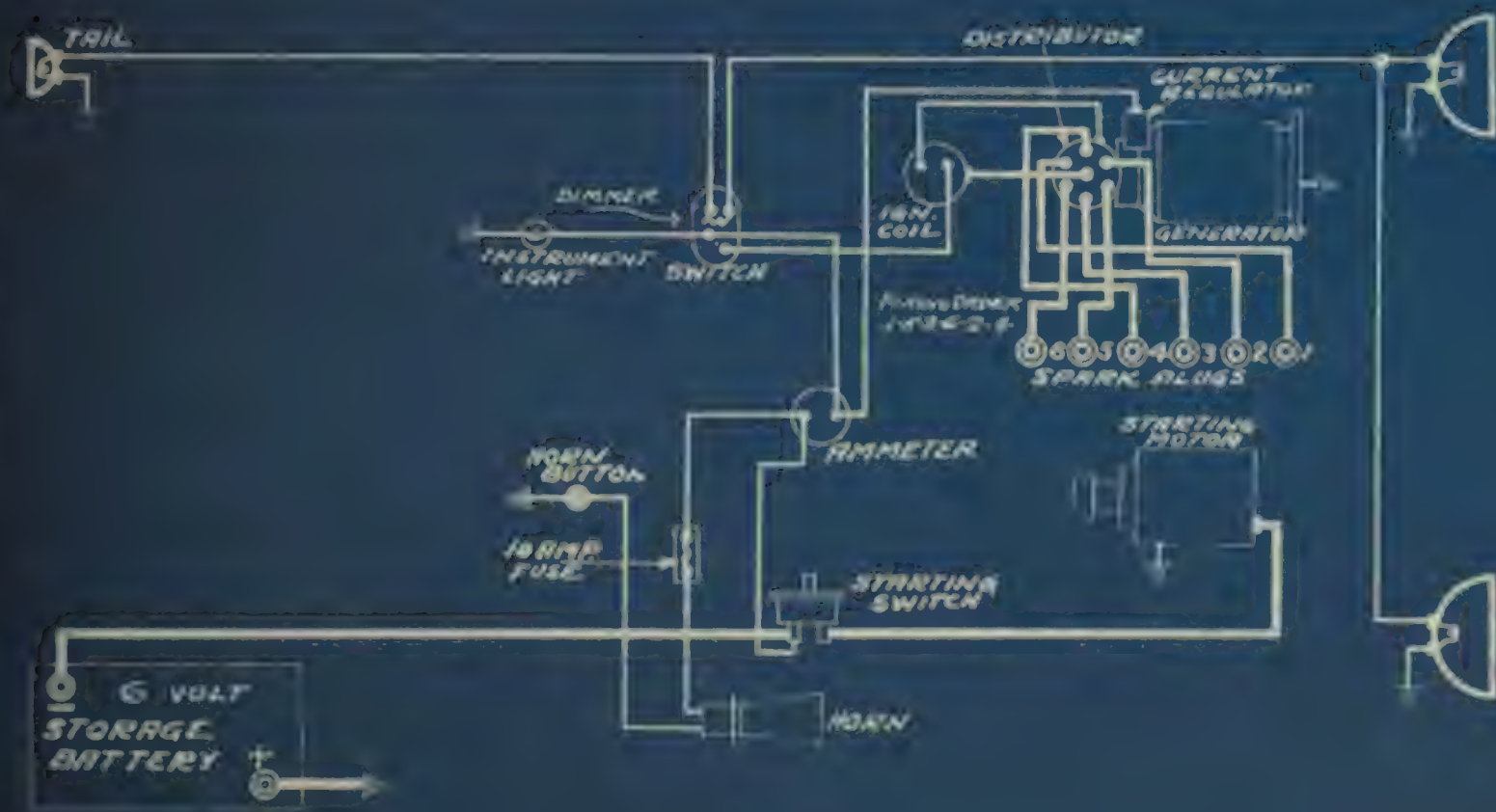




# MITCHELL LATE 1919 & 1920

REMY SYSTEM (RETER 4000 E-10" AND 400 E-92" CHASS)

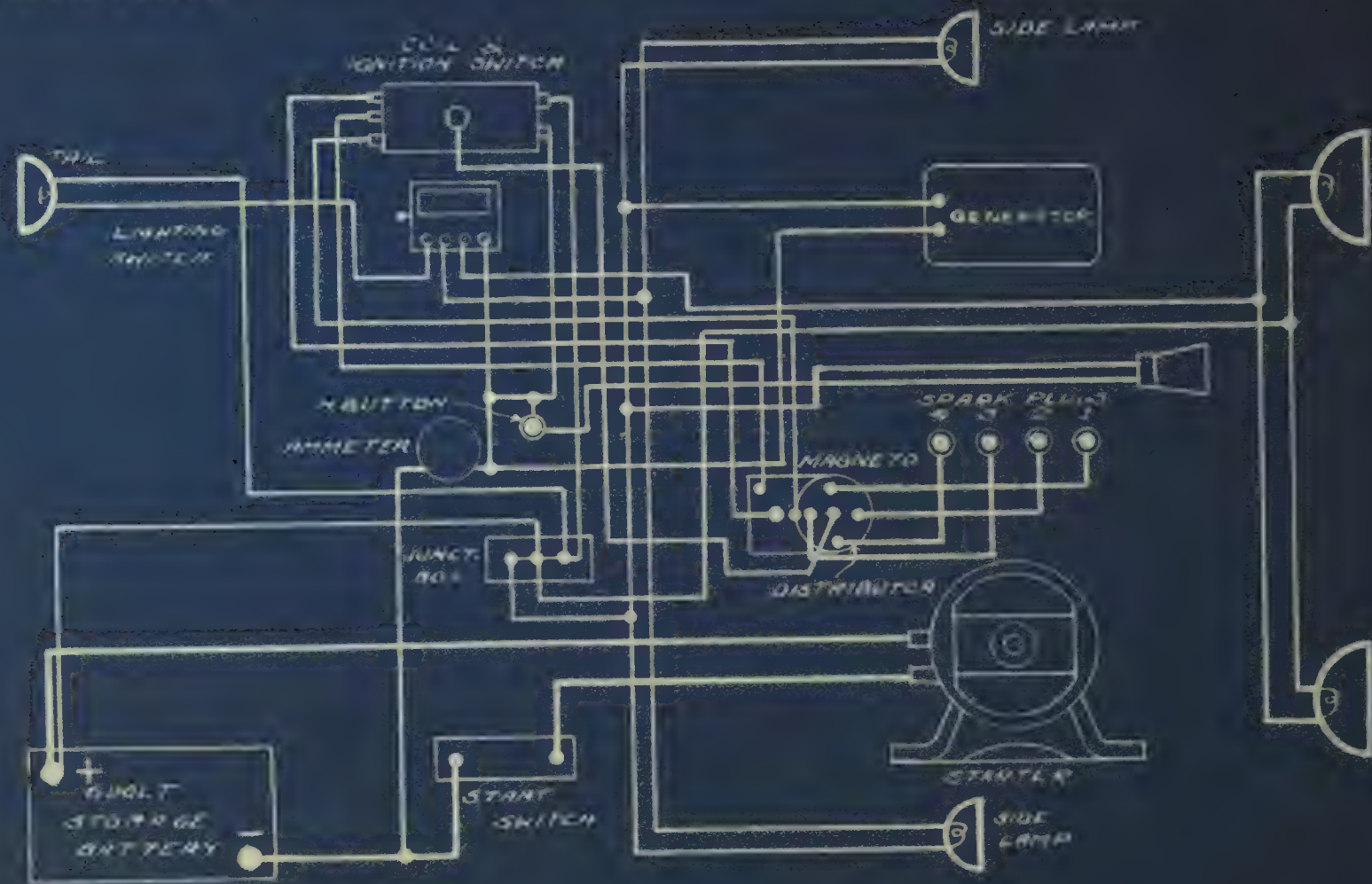
FROM PIERCE, M.P. 12015



# MITCHELL-LEWIS 1914

RELAY SYSTEM

FROM RELAY PL. 112.

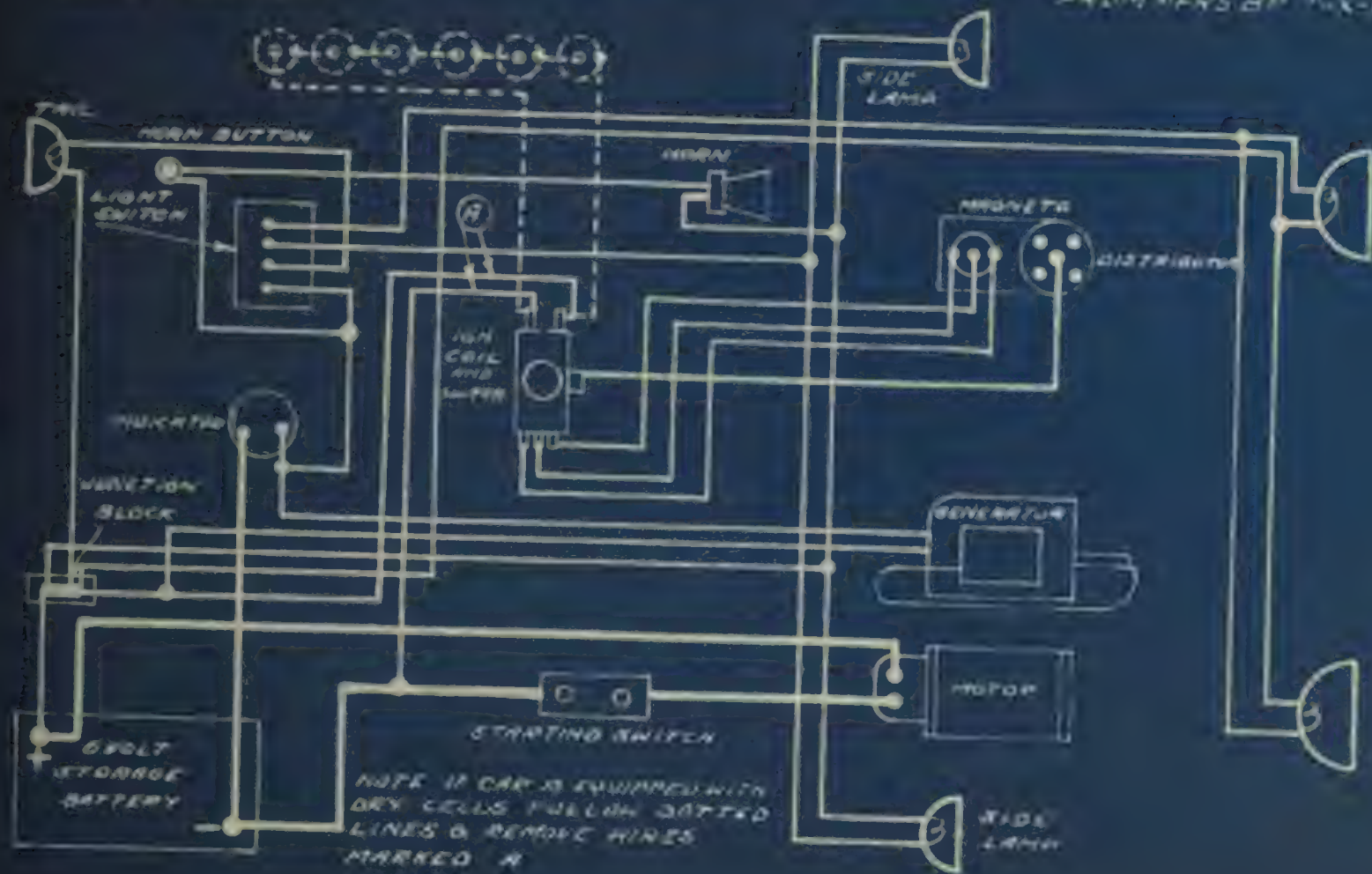


# MITCHEL-LEWIS 1914

## REMY SYSTEM

A-40-50-70

FRONT VIEW OF THE WIRE

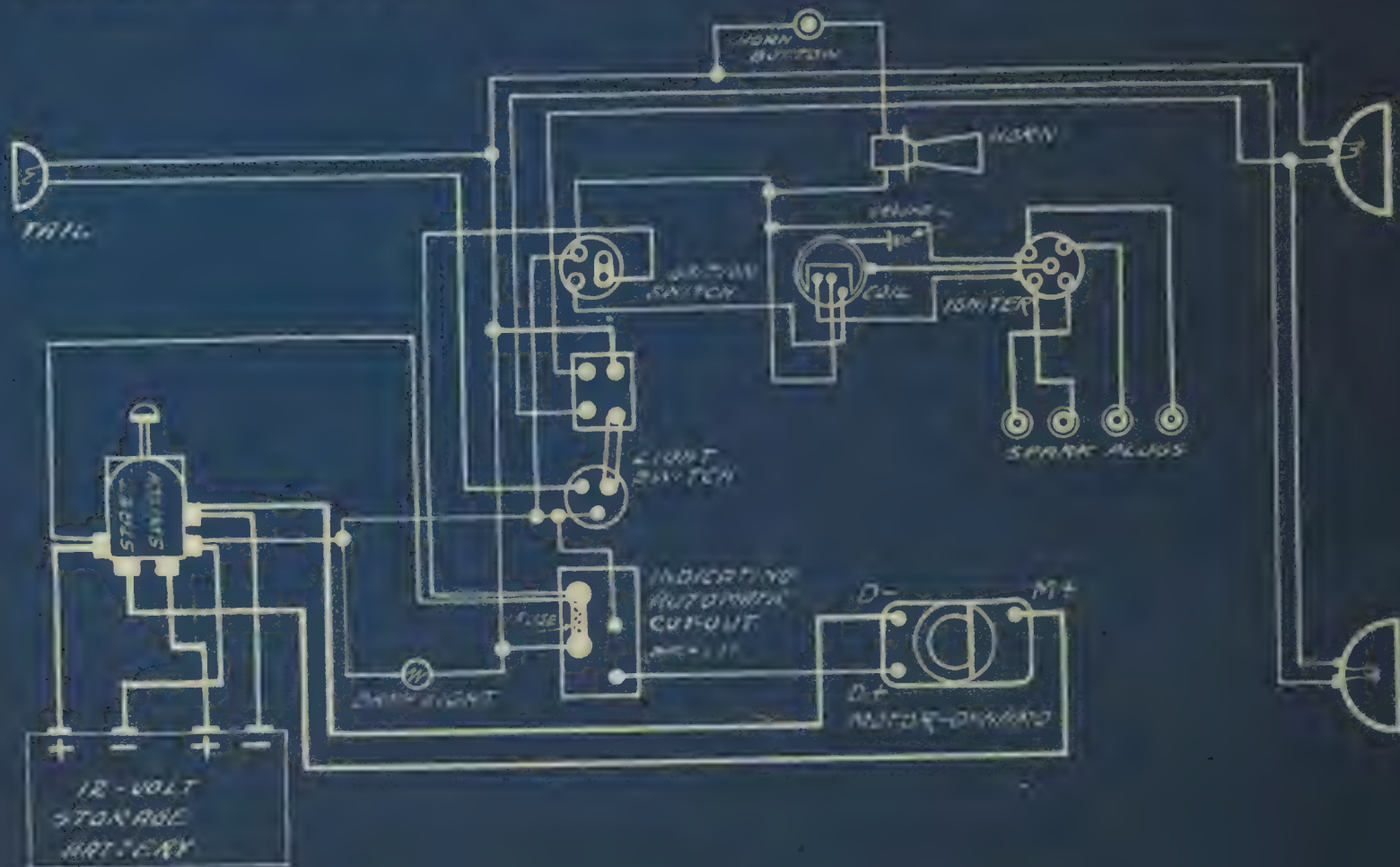




MITCHELL-LEWIS  
SPLITCOKE-APELCO SYSTEM

1915 "4"  
CONNECTED IGNITION

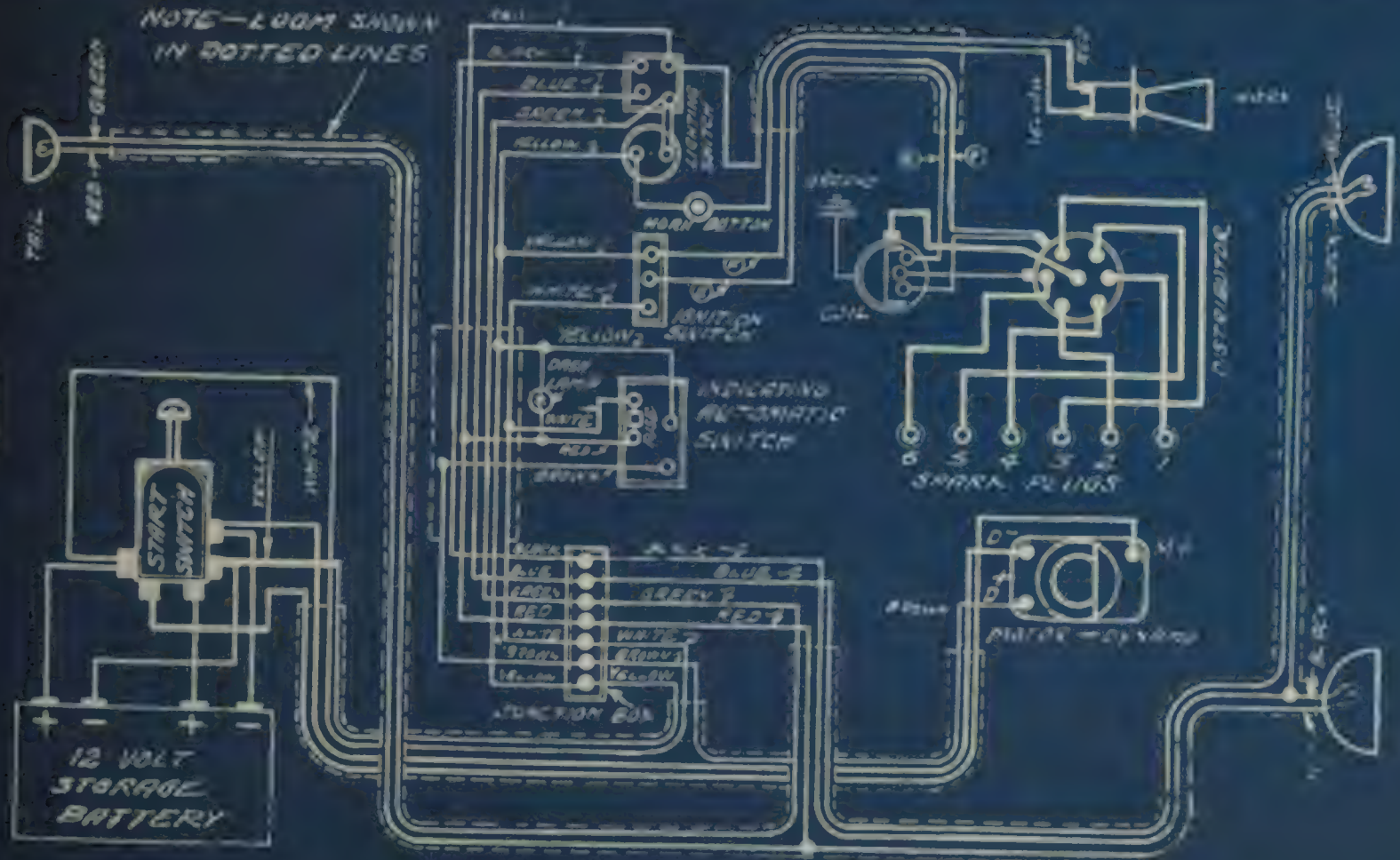
FROM SPARKMANUAL



# MITCHELL-LEWIS 1916 SPLITCOORF-APELCO SYSTEM

FROM SPLIT-APELCO MANUAL  
CONNECTING WIRING

AUTOMOTIVE PUBLICATIONS CO.  
CHICAGO, U. S. A.

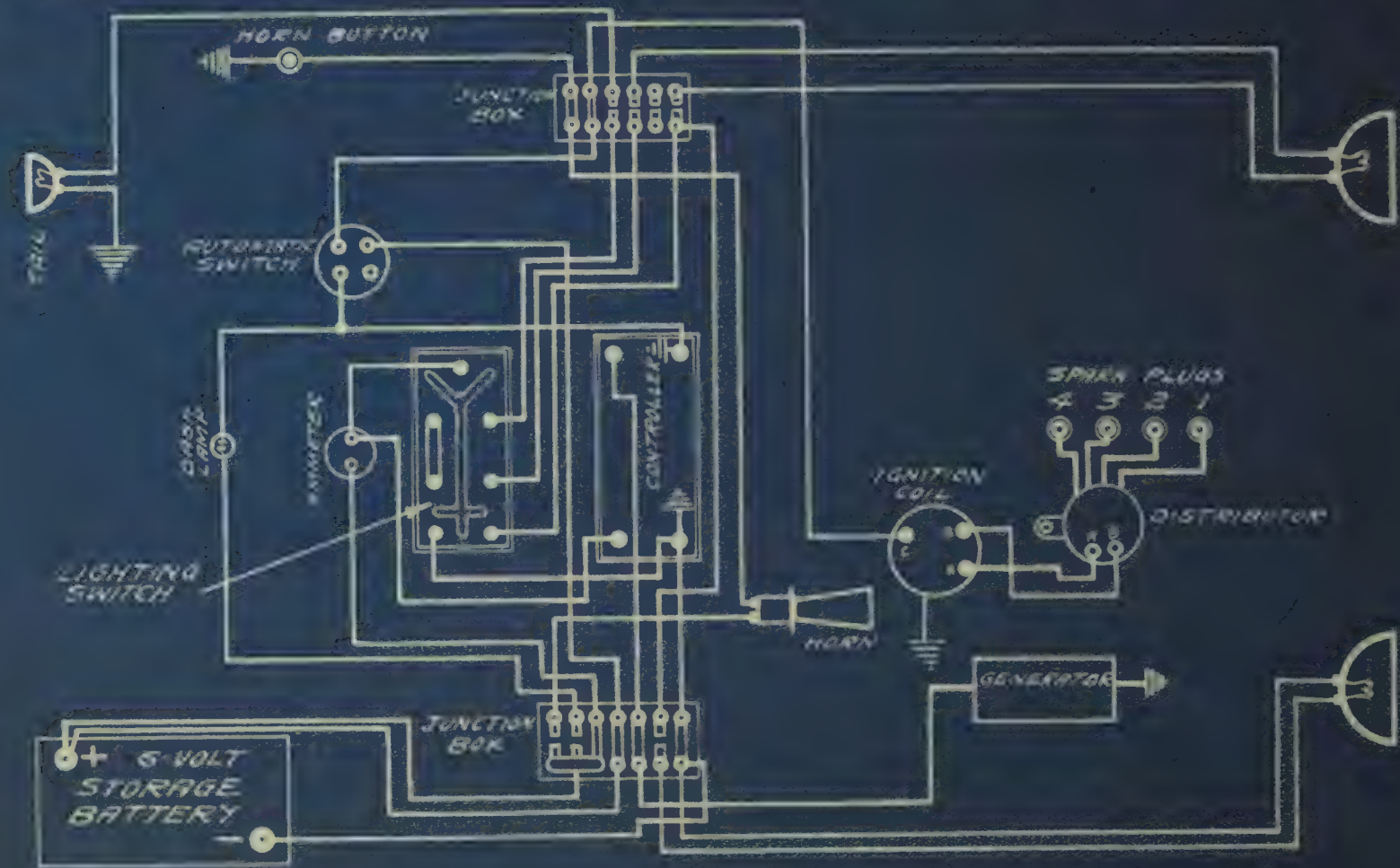


**MOLINE-KNIGHT**  
WARD-LEONARD SYSTEM

1912-13-14

M-K 40

FRONT HEADS BY CID-5



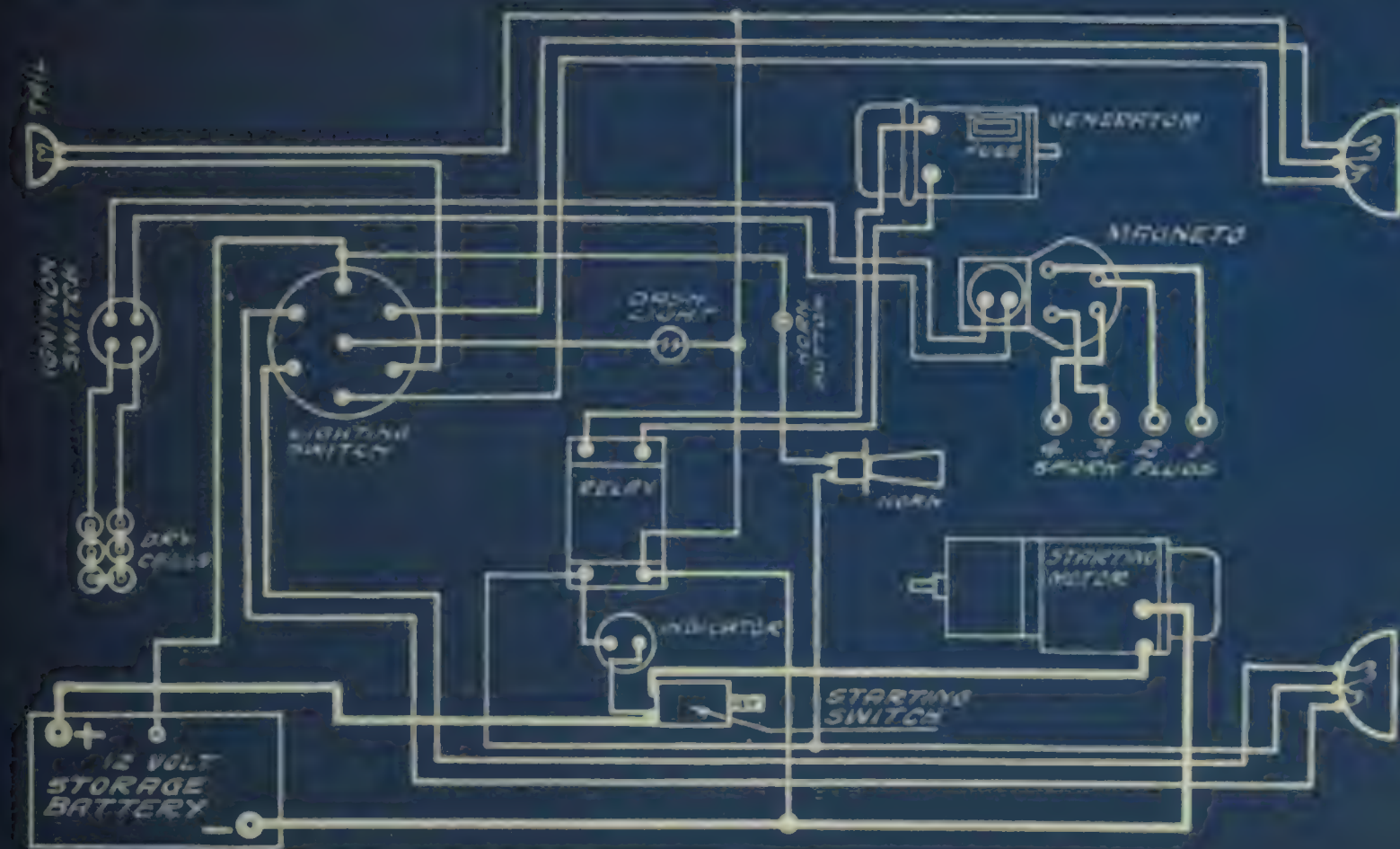


MOLINE-KNIGHT  
WAGNER SYSTEM

1914-15

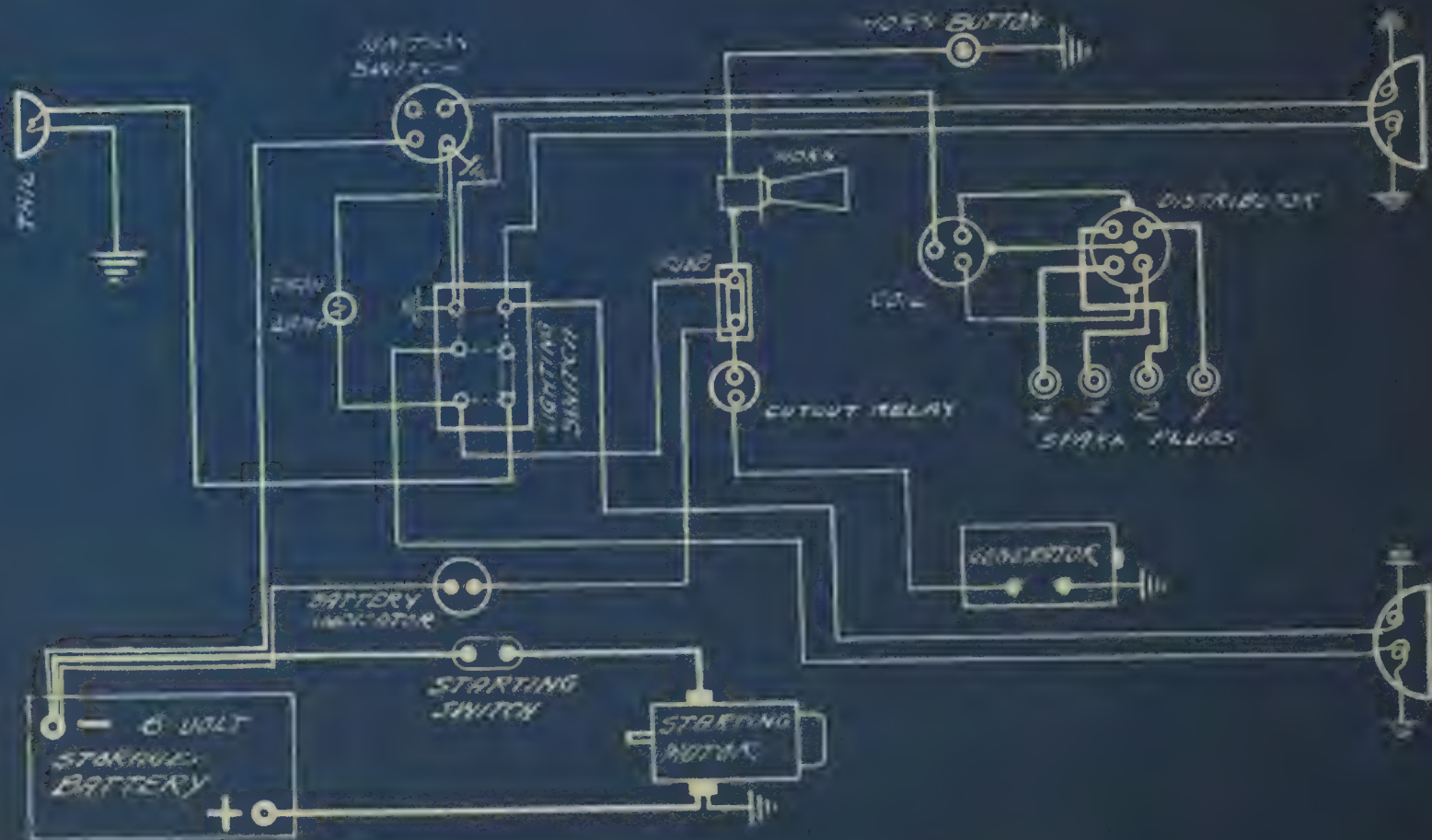
MK-50

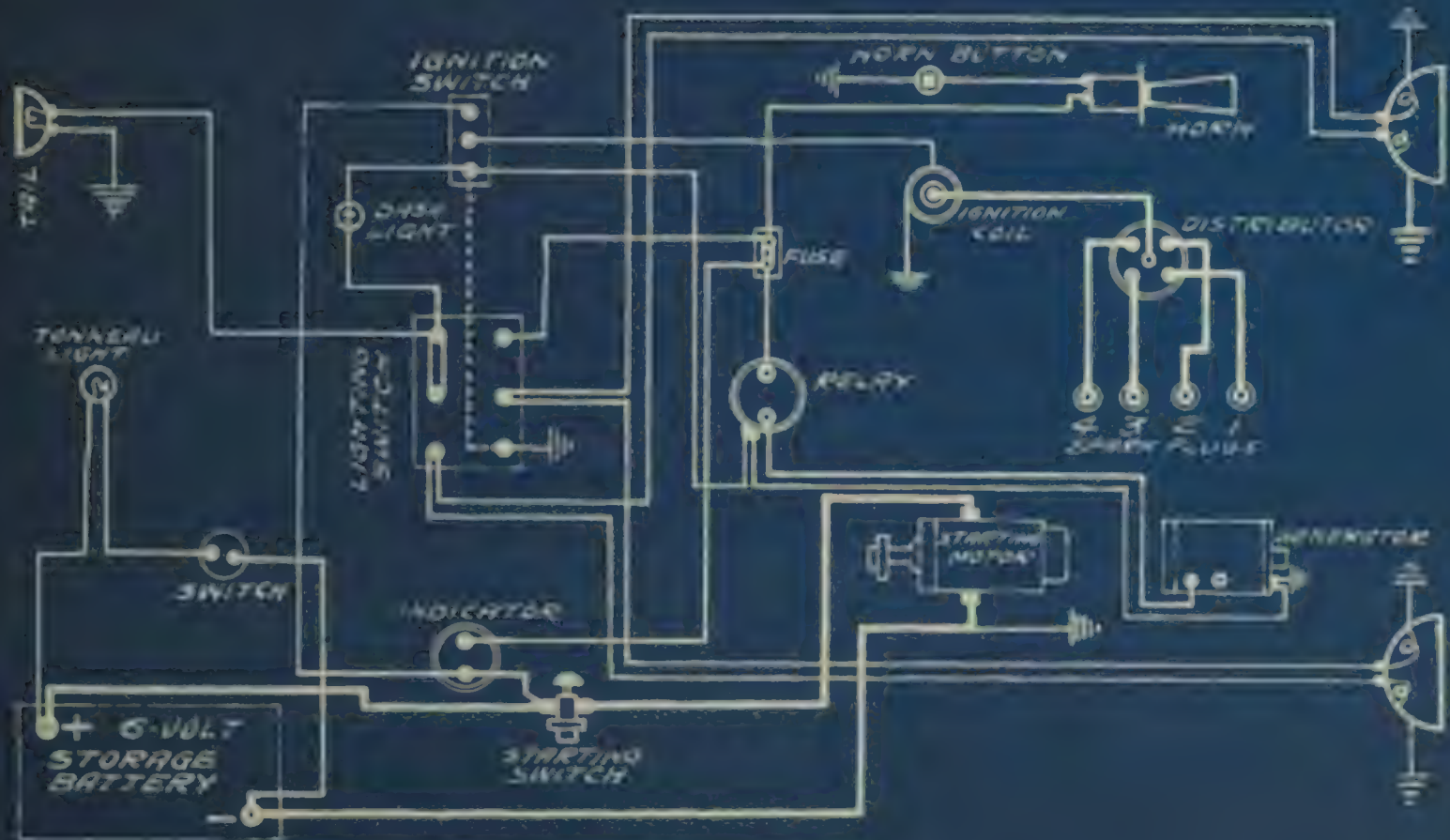
FROM MFRS BP 810-5



# MOLINE-KNIGHT MK-40-50 1916-17-18 WAGNER SYSTEM

FROM MPSS BY CID-B5





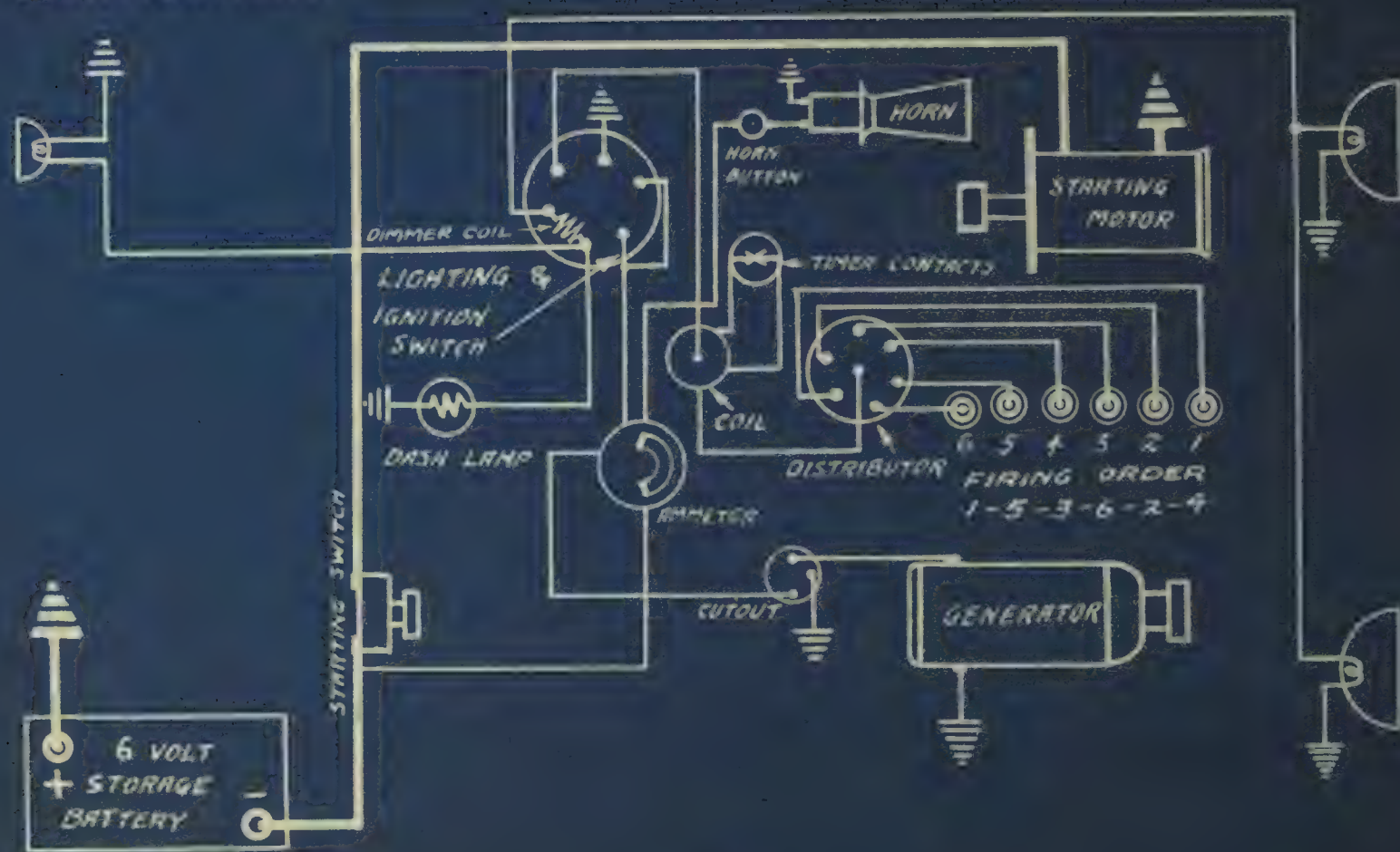


# MONITOR 1919

## DYNETO SYSTEM

### CONN. IGNITION

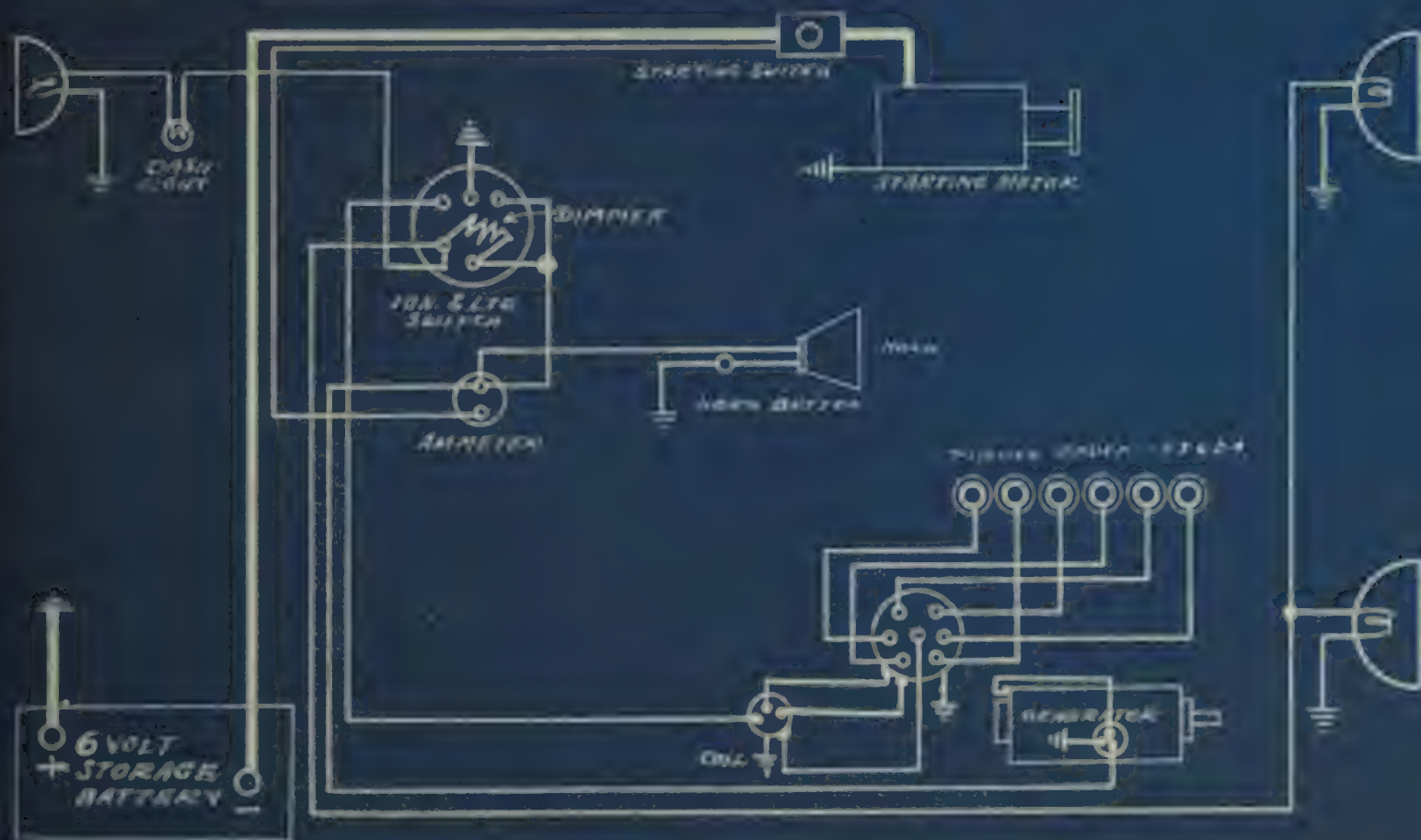
FROM PERS. SKETCH



# MONITOR "6" SERIES THREE 1919-1920

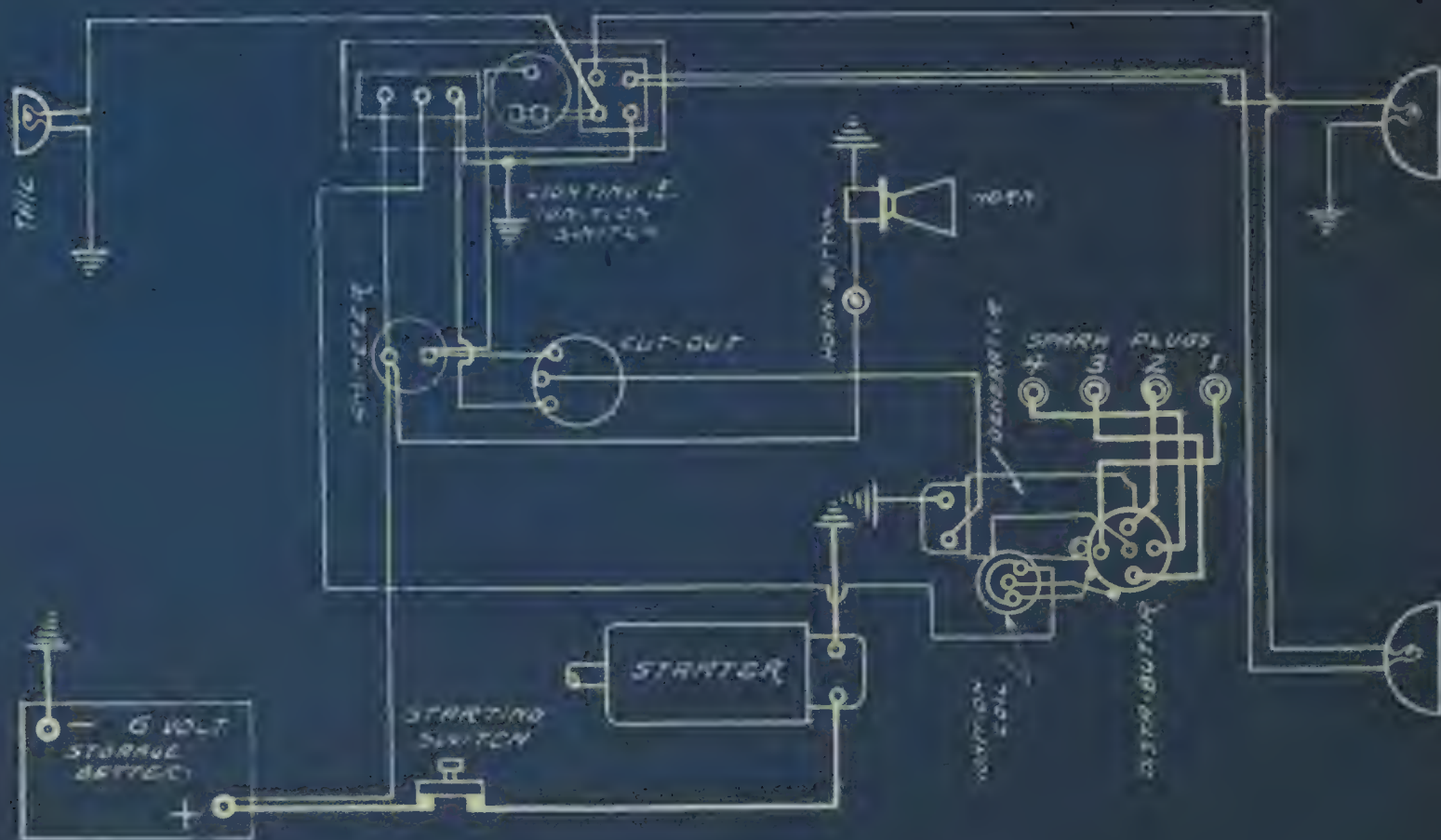
DYNETO START & LIGHT  
CONNECTION

FROM MOTOR UNIT, 2500 ft



MONROE 1915 M-2  
AUTOLITE SYSTEM CONNECTION

FROM MPRE. BA 29590

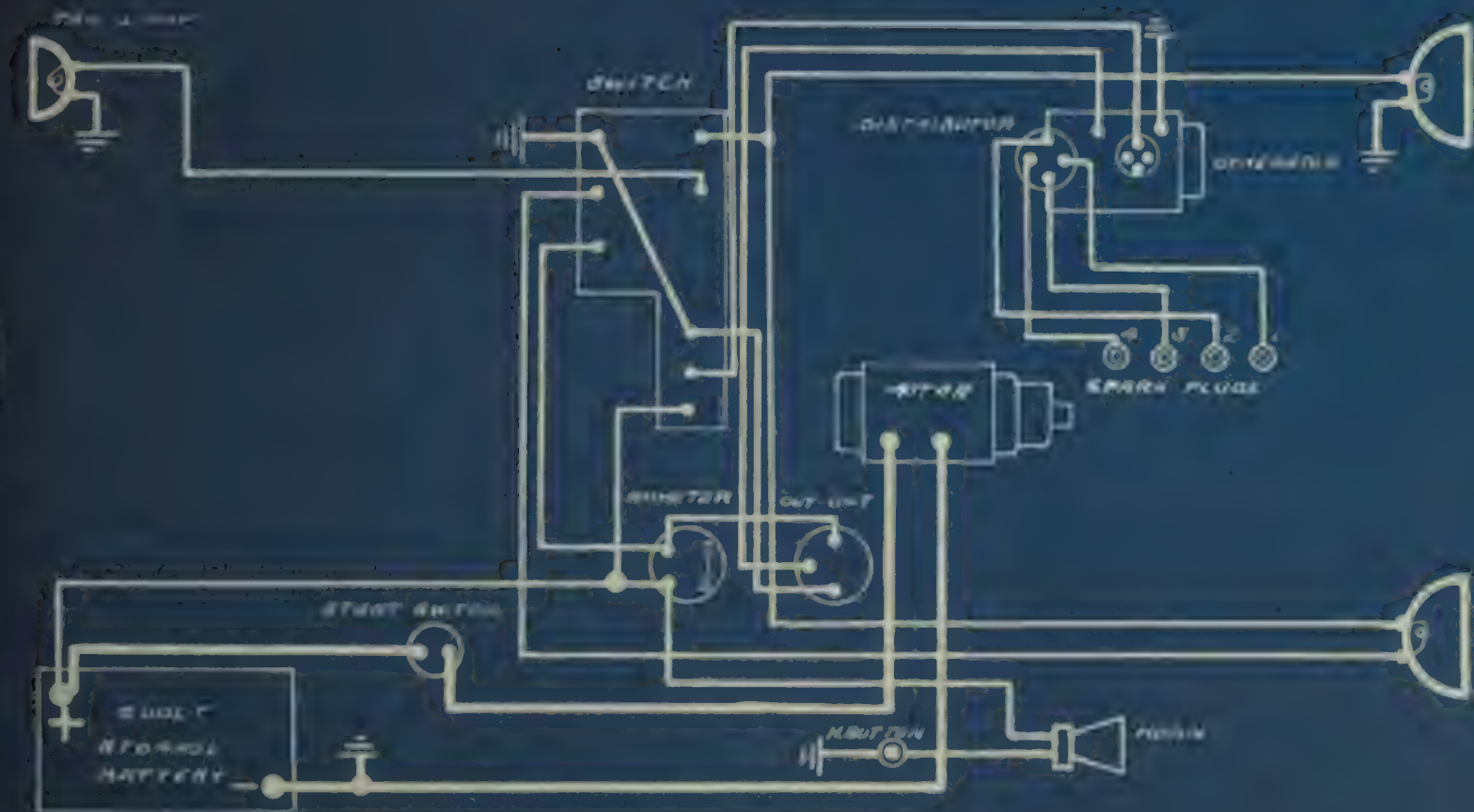




# MONROE MODEL 3 1917

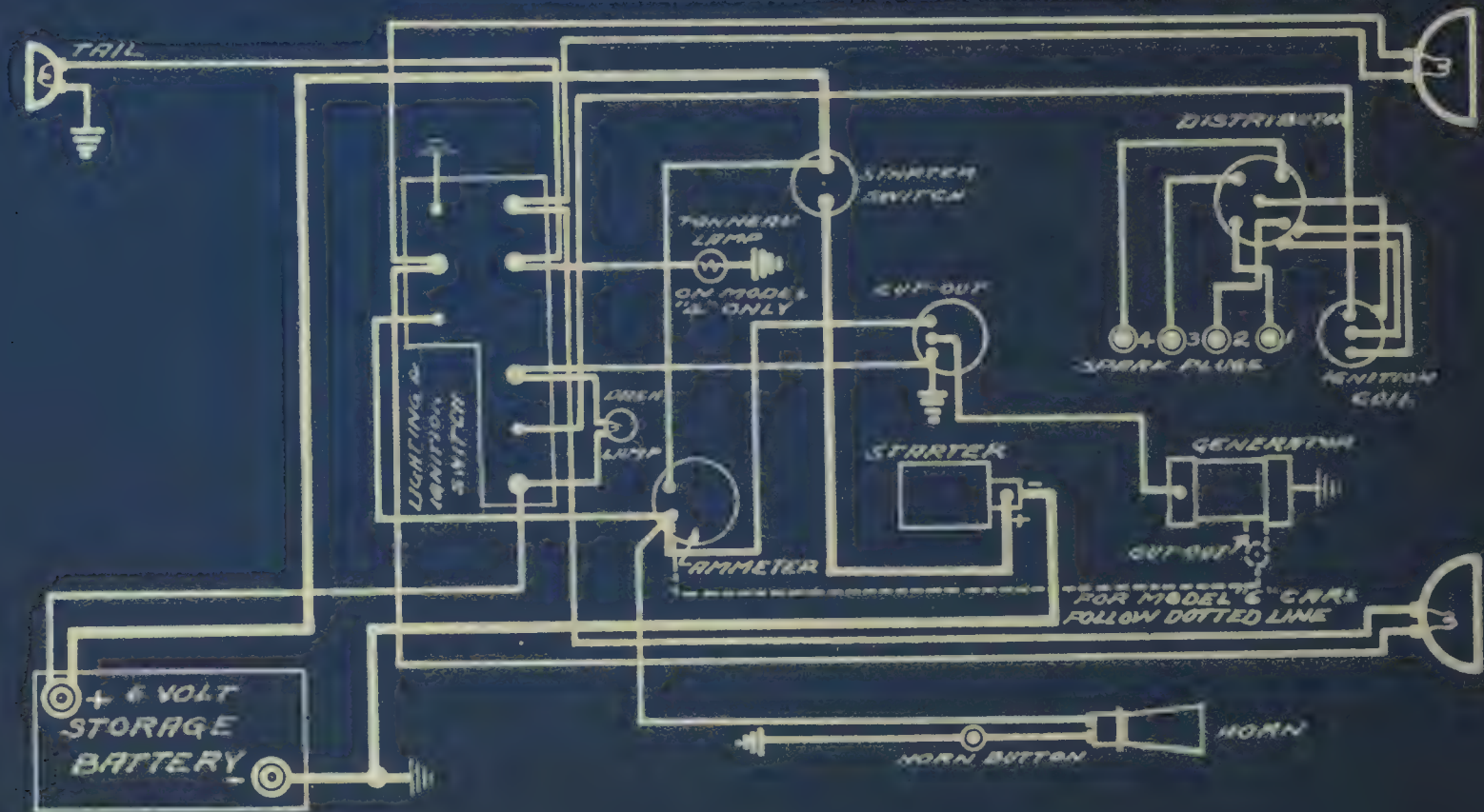
AUTOLITE SYSTEM - CONN. (CN.)

WIRE - 16 GA. 3/16" DIA.



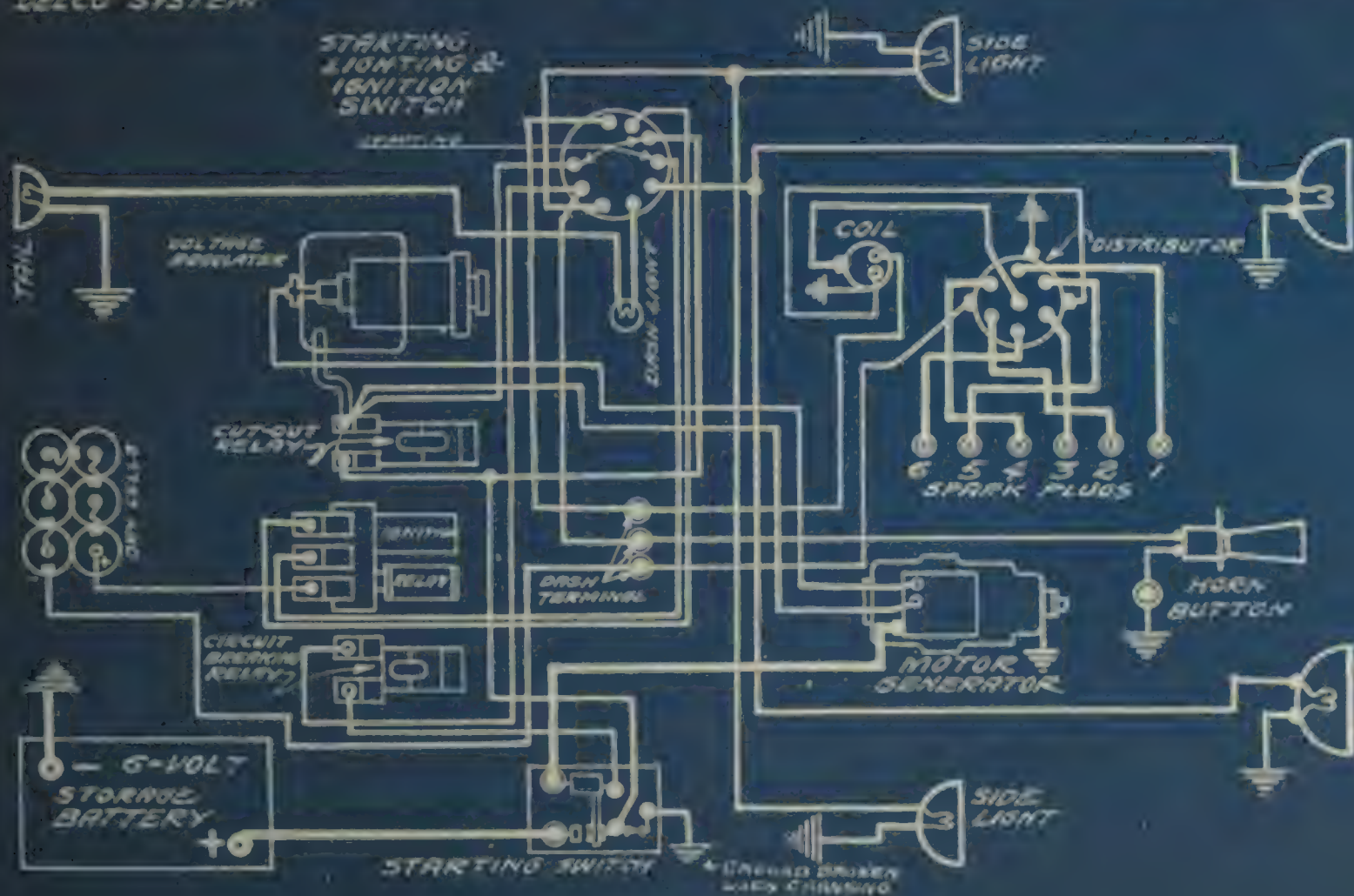
MONROE 1917-18 MODELS 4-5 & 6  
AUTOLITE SYSTEM

FROM FACTORY & P. 956 & 1801



MOON 1914 "42" "6-50"  
DELCO SYSTEM

FROM DELCO MANUAL

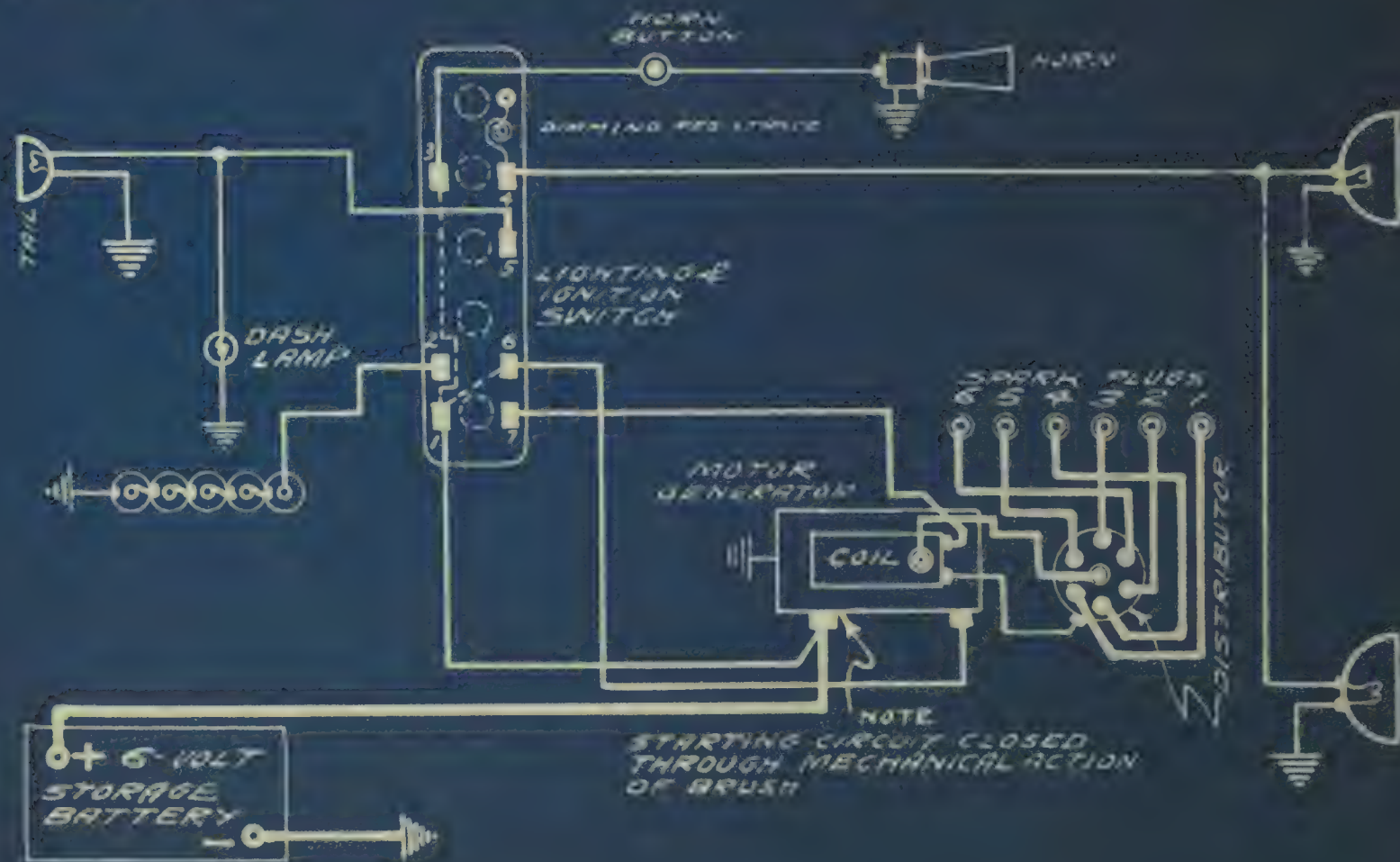




MOON 1915  
DELCO SYSTEM

4-38 6-40

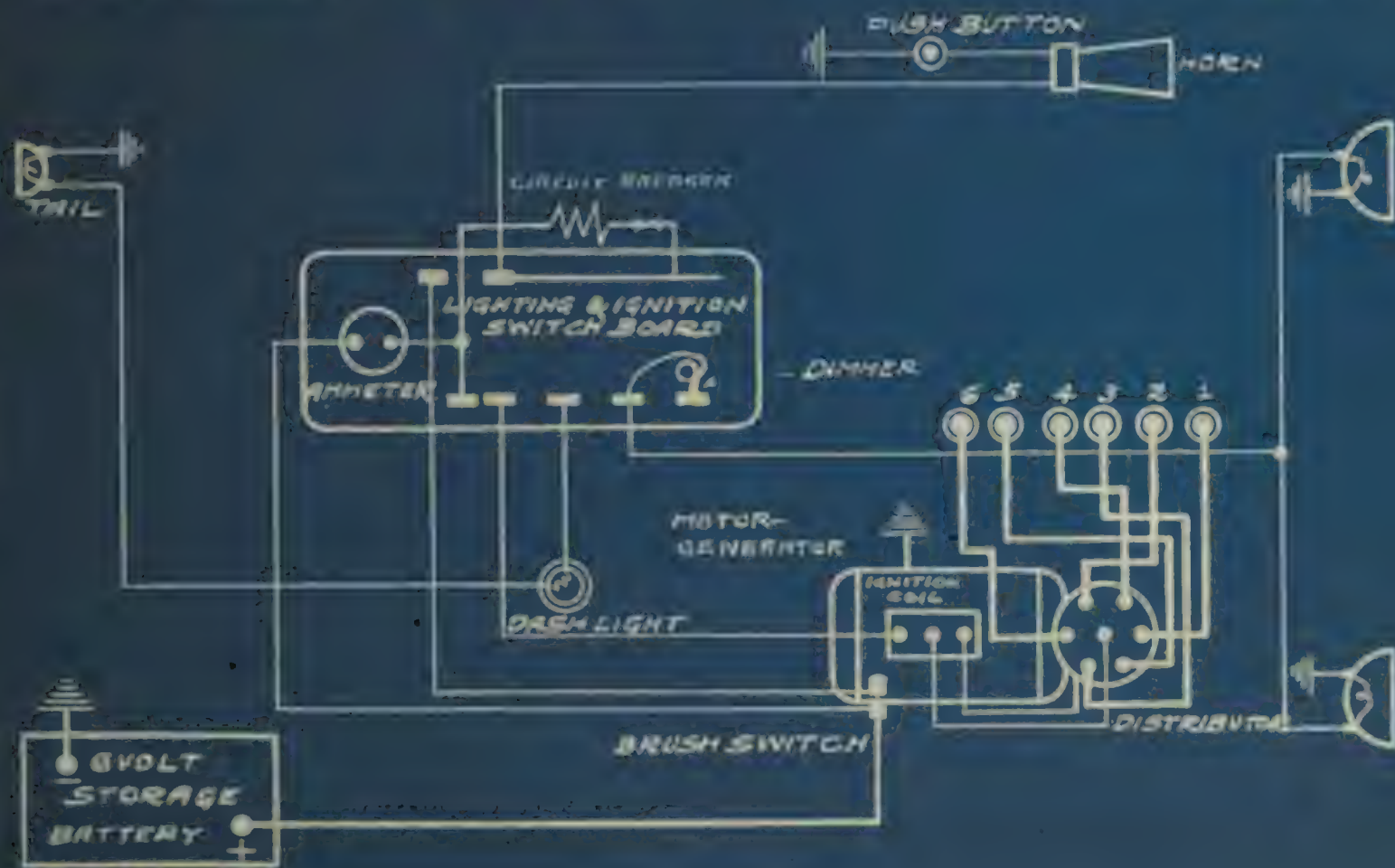
FROM DELCO MANUAL



**MOON 1916**  
DELCO SYSTEM

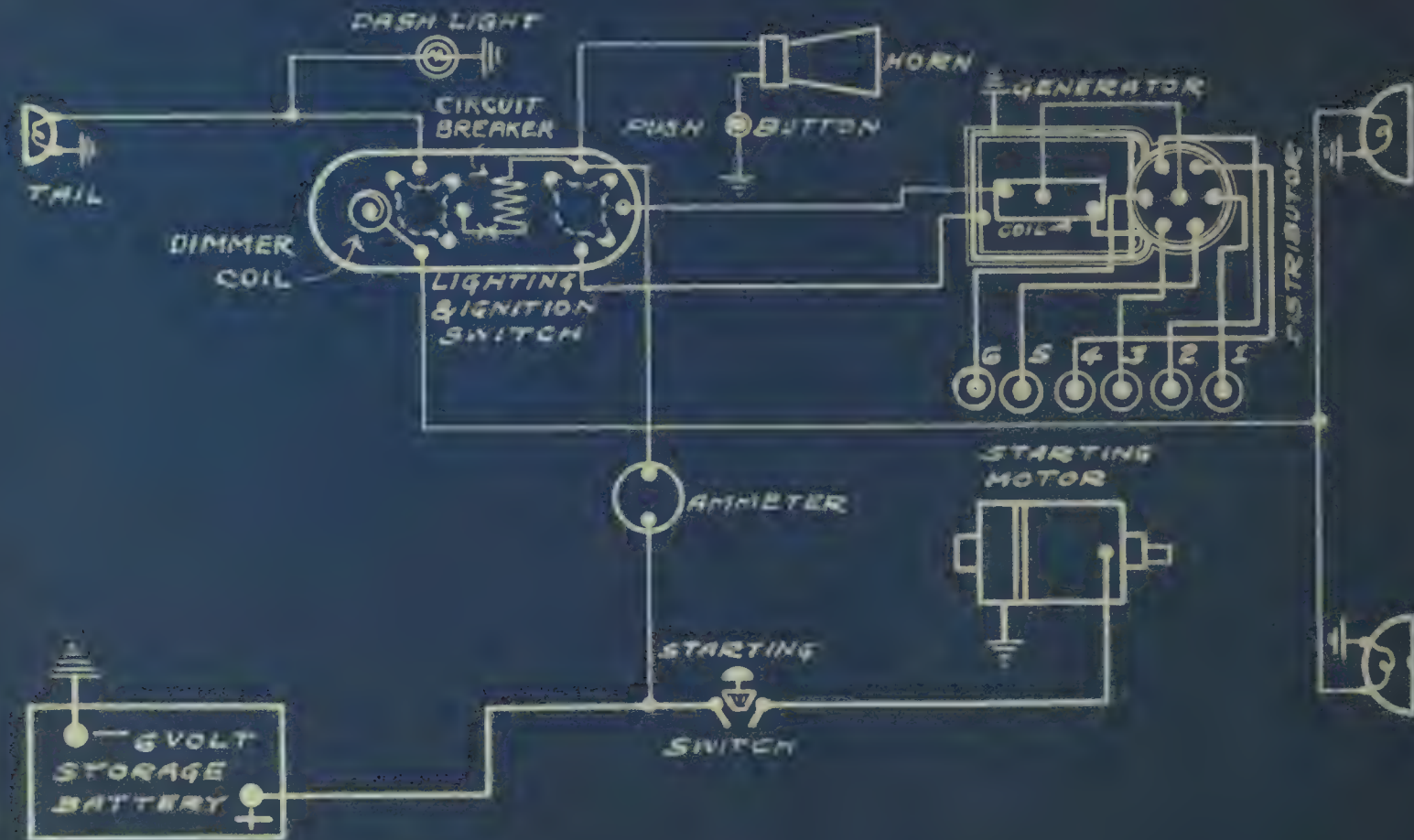
**6-30+6-40**

FROM MOON INST. BOOK



MOON 1917-18 6-43  
DELCO SYSTEM

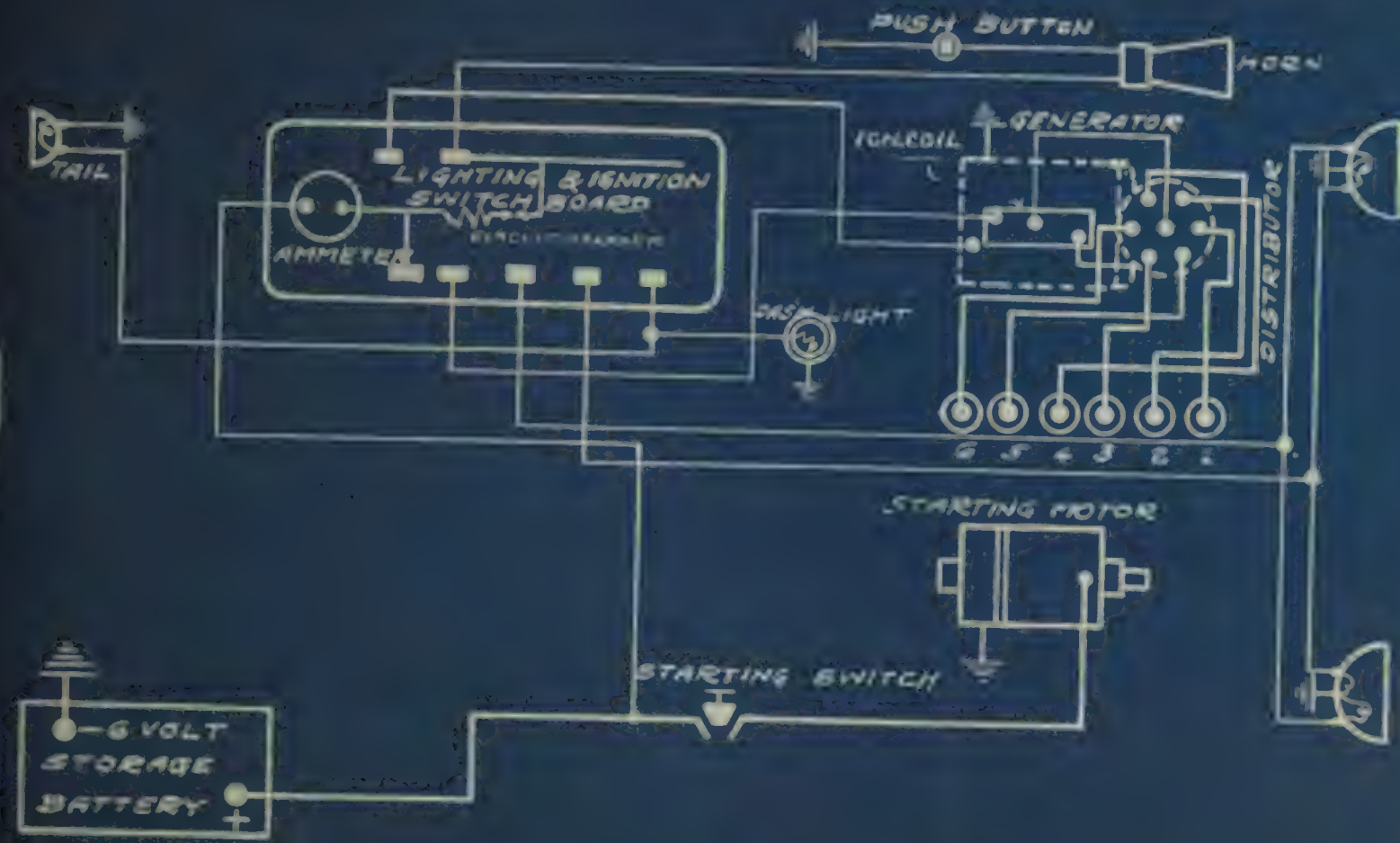
FROM MOON INST. BOOK





**MOON**  
DELCO SYSTEM

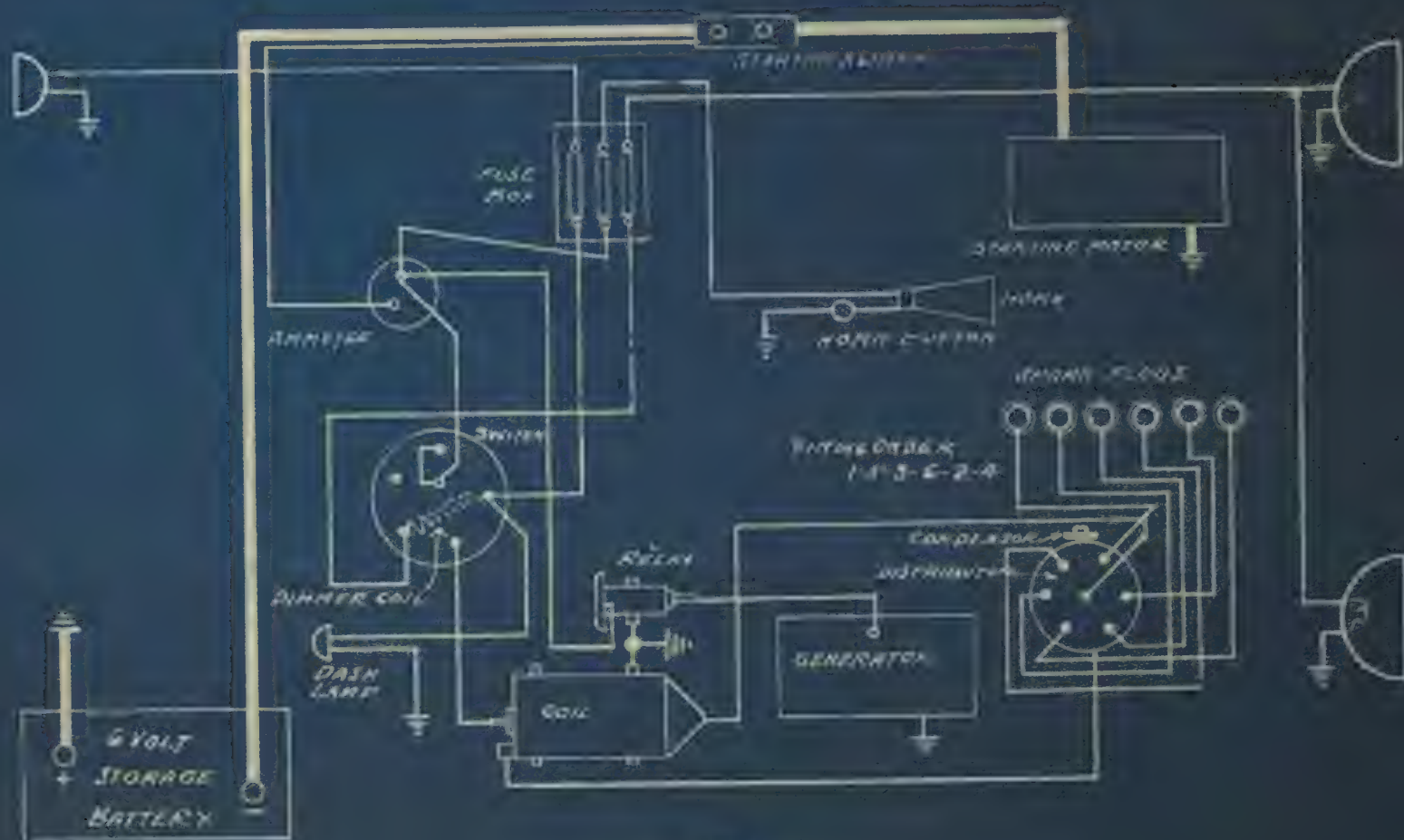
1917-18-19 "6-66"  
FROM MOON INST. BOOK



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Automotive Publishing Co.  
Chicago, U.S.A.

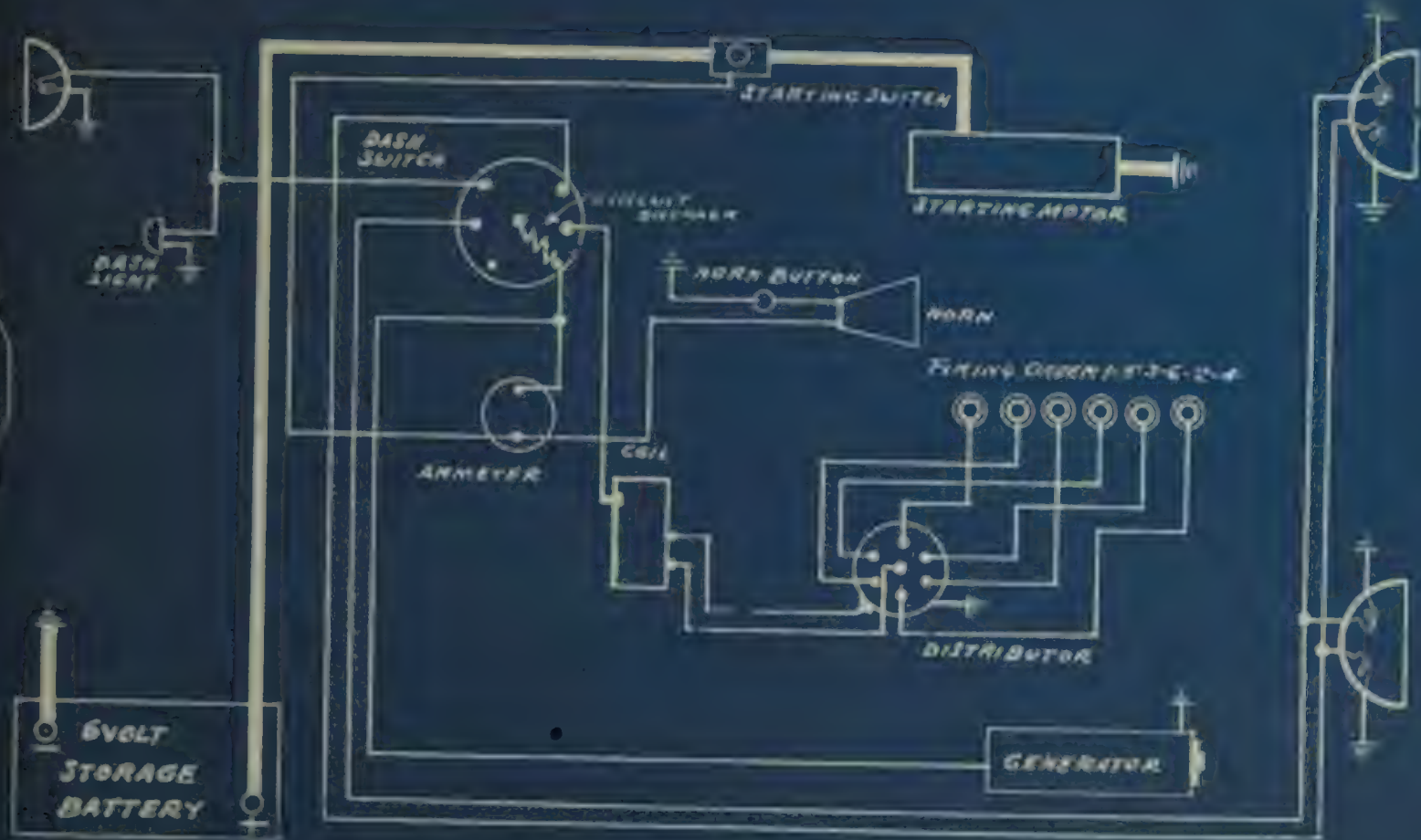
# MOON "VICTORY" 1919-20 WAGNER SYSTEM

WAGNER SYSTEM OF 1919-20



MOON MODEL 6-48 1920  
DELCO SYSTEM

FORM NAB-2 (2-7-72)

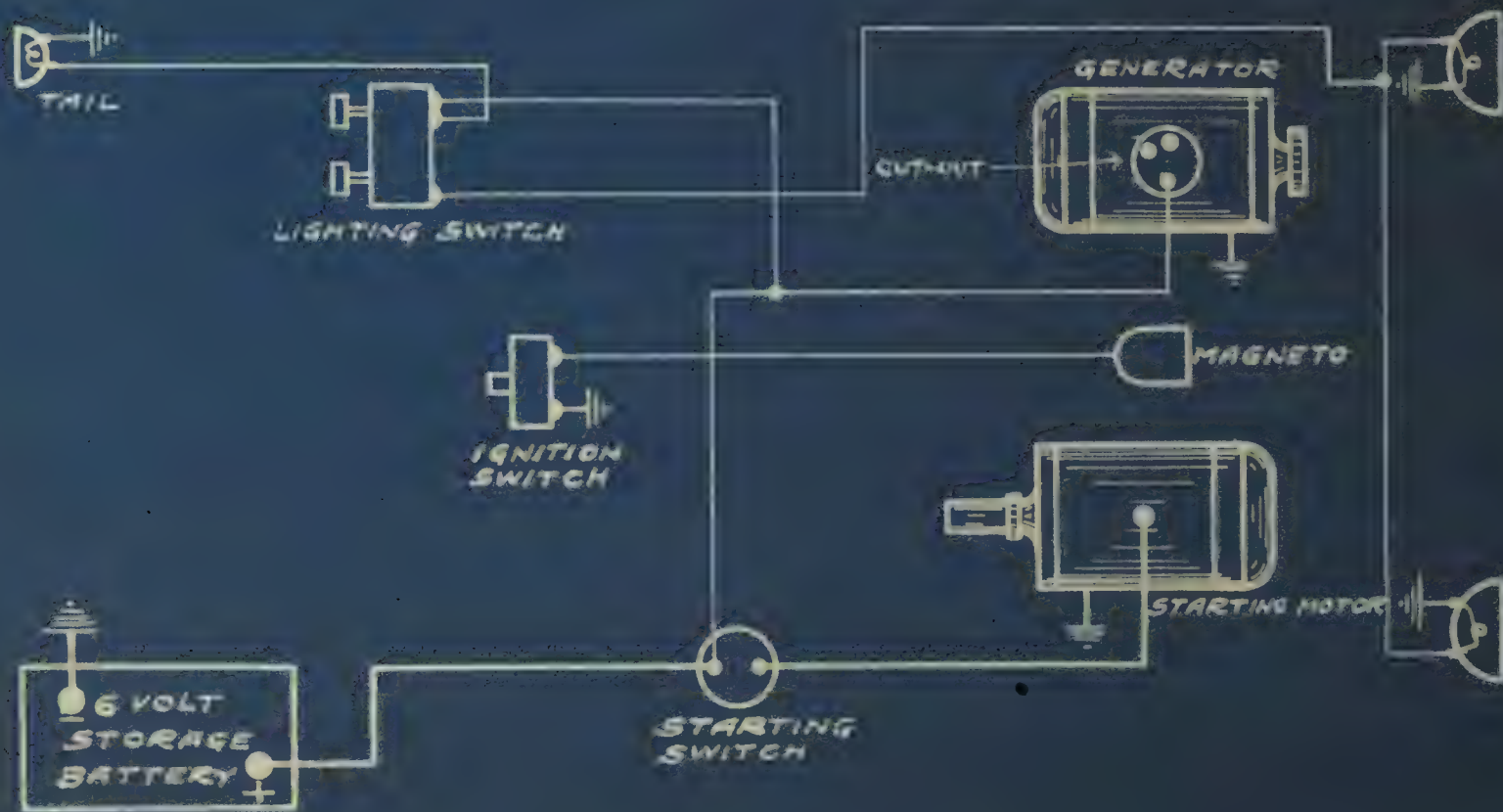




MOORE 1917-18  
DYNETO SYSTEM

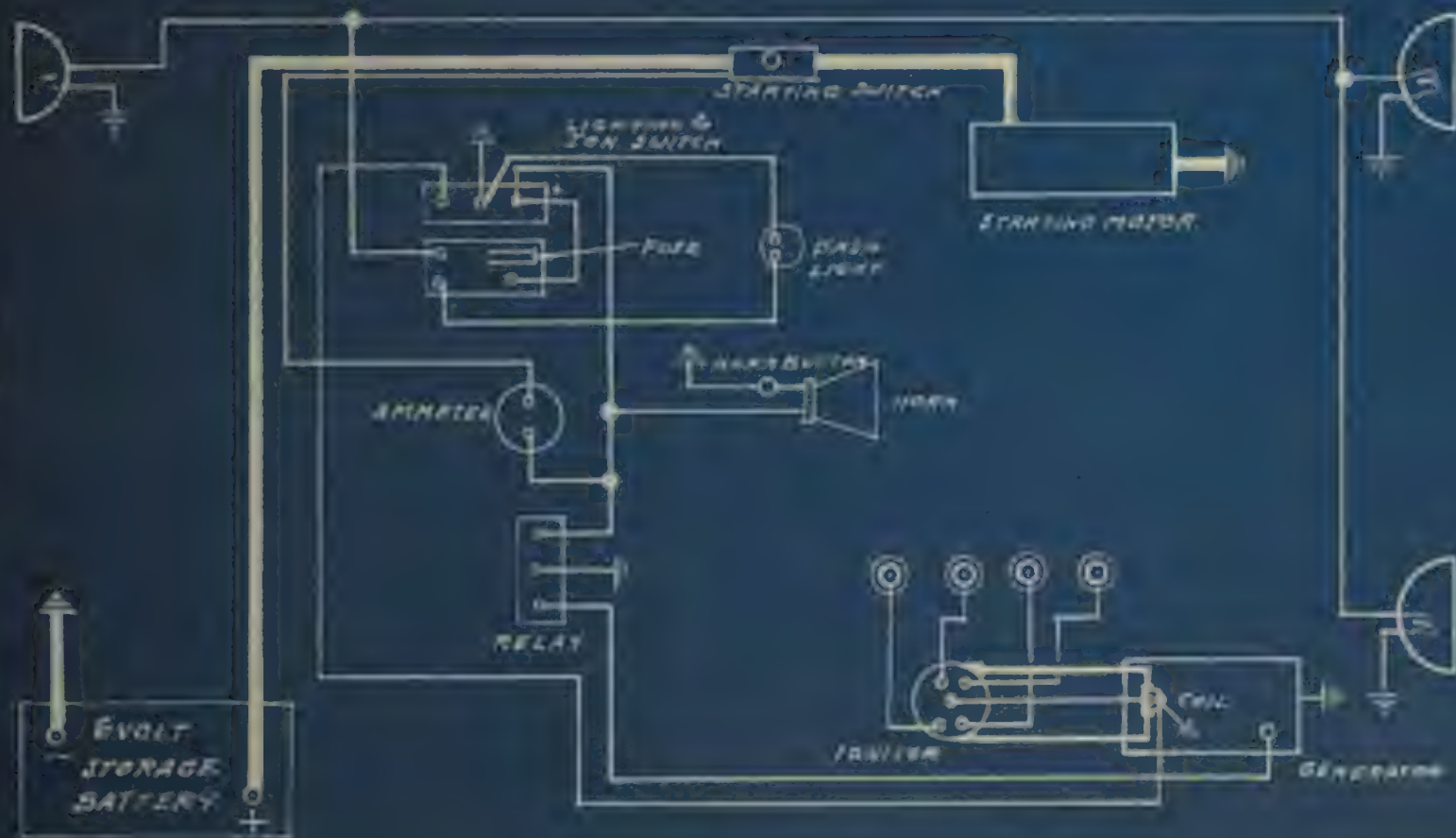
30

FROM MERS B/P 48-B



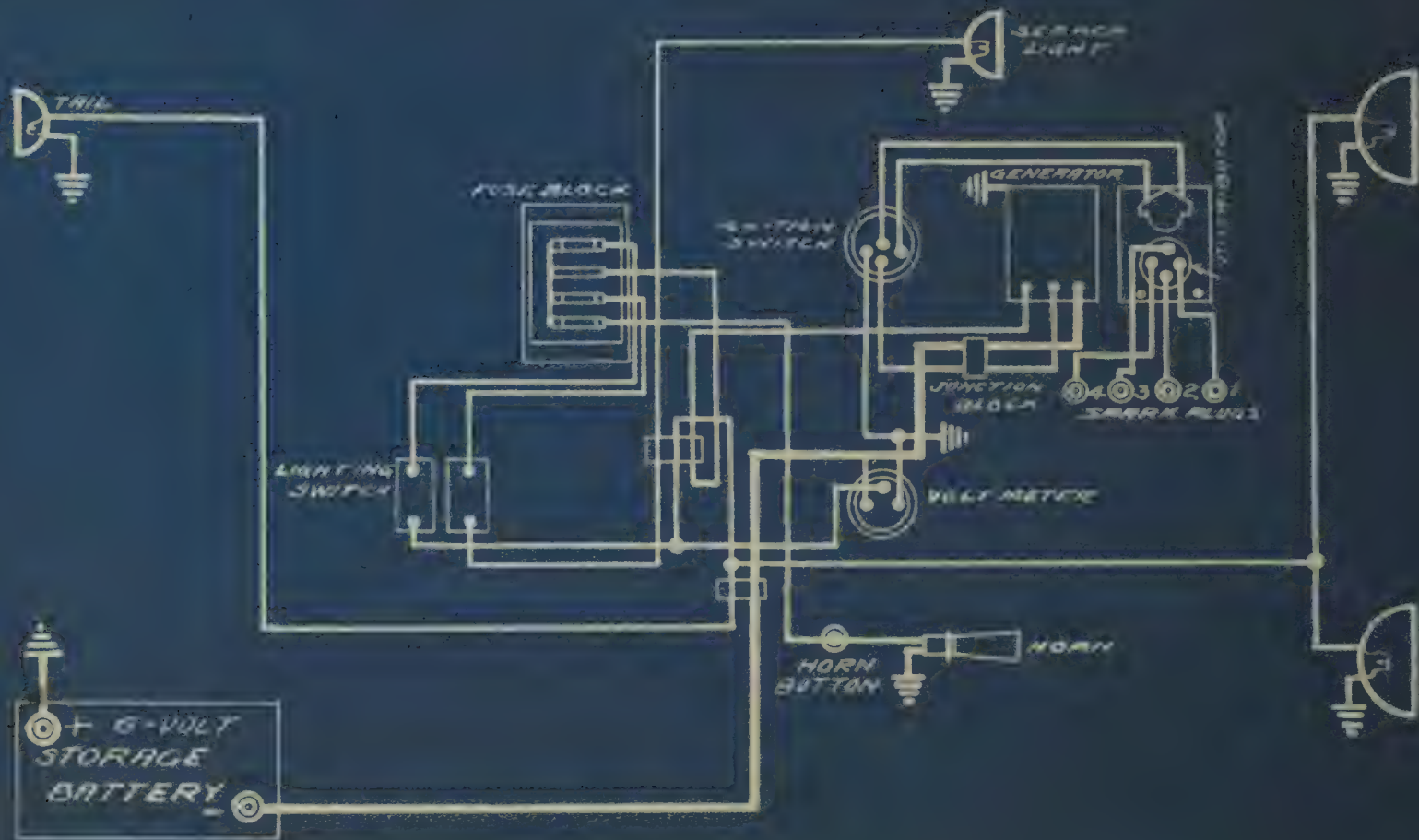
**MOORE MODEL "F" 1919-1920**  
**AUTO LITE STARTING & LIGHTING**  
**CONV IGN**

FABRIK HERRSCHP 1919



# MORELAND TRUCK 1½-2½ & 3 TON WESTINGHOUSE SYSTEM

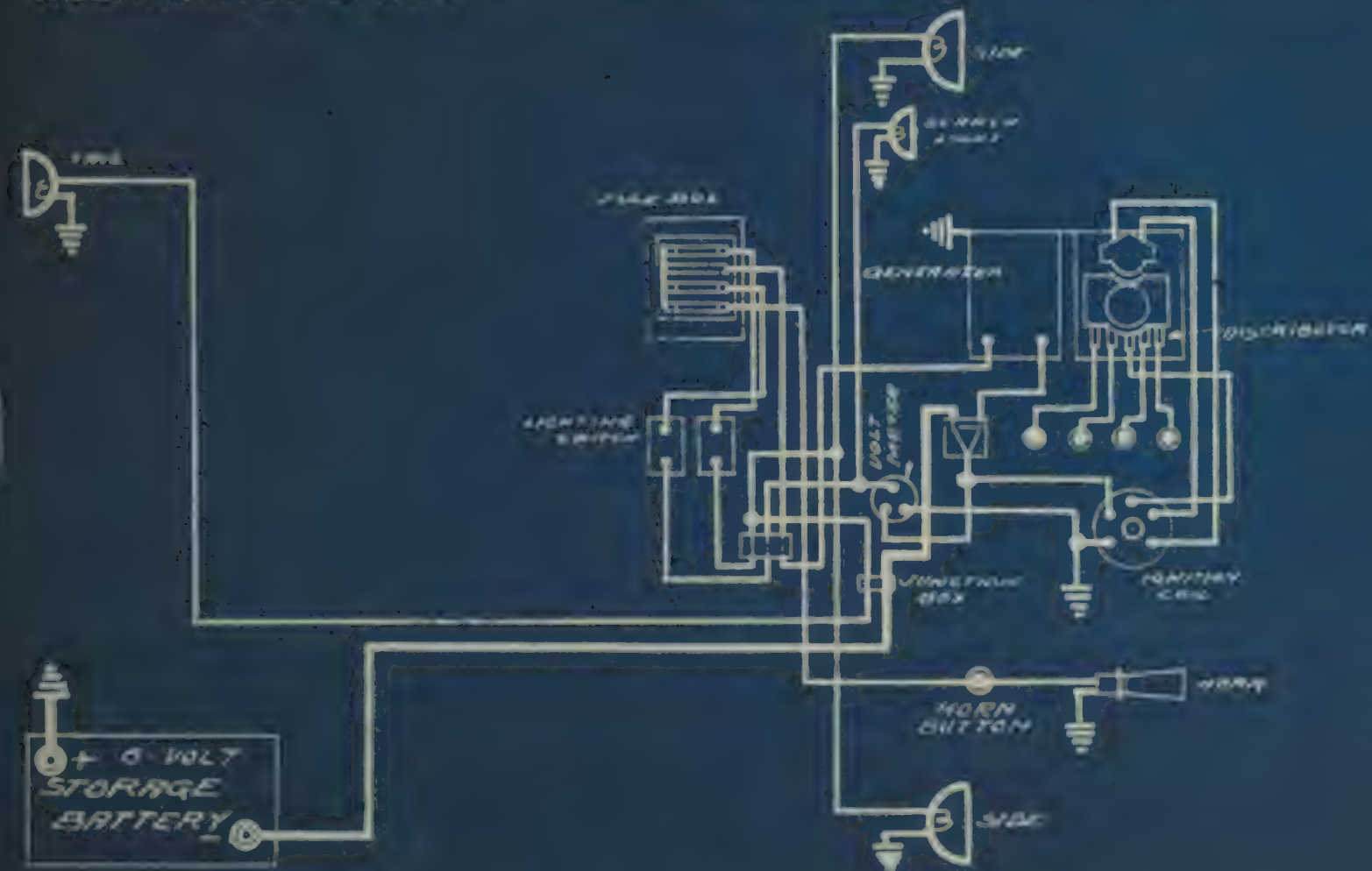
110 AMP 6V ELECTRICAL SYSTEM



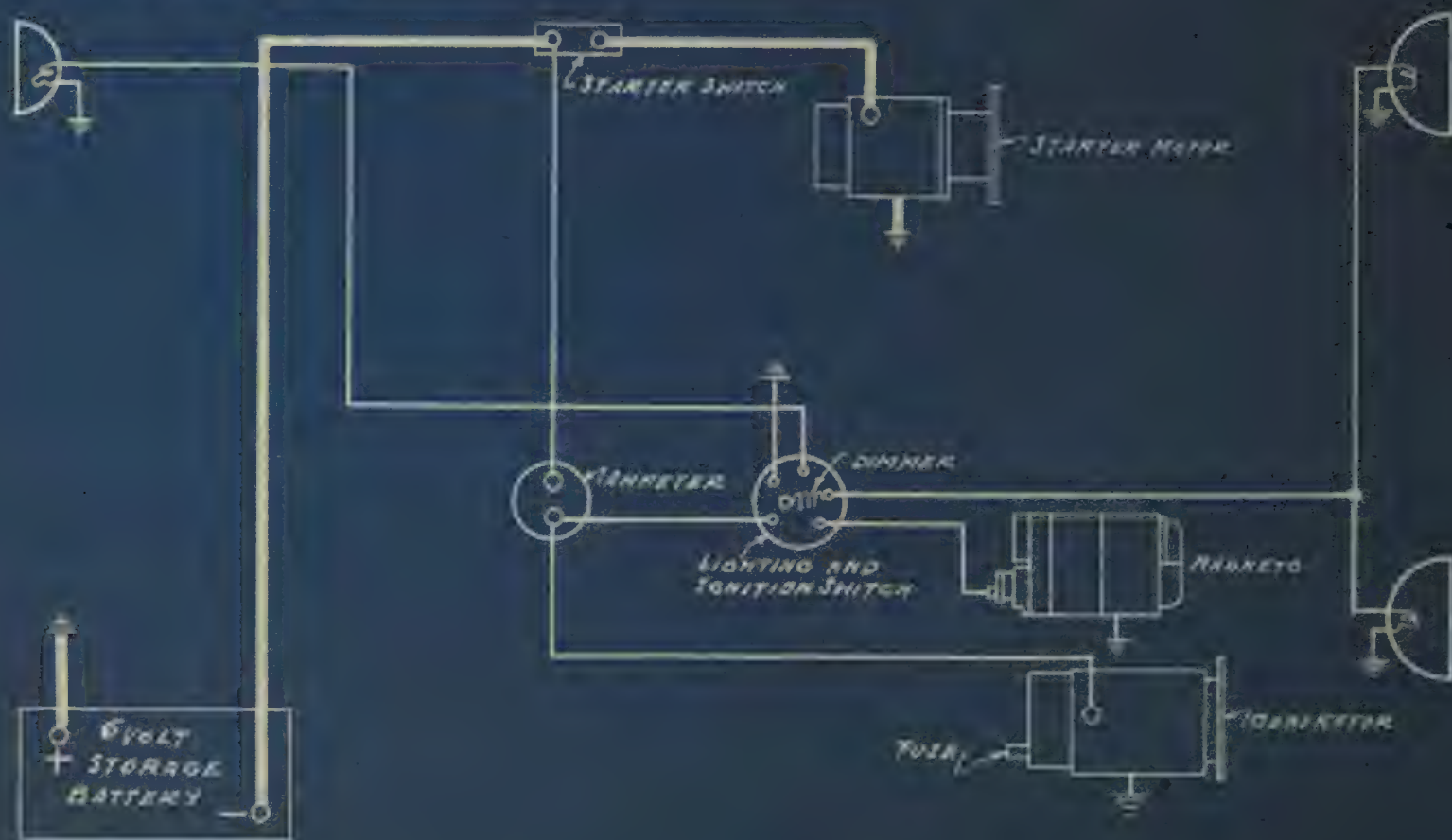


# MORELAND TRUCK MODELS 2X & 5X WESTINGHOUSE SYSTEM

FROM WEST MANUAL



MUTUAL TRUCK MODELS 2A-2AP 1920 FROM H.P. 2.1 TO 2.5 TO  
 WESTINGHOUSE SYSTEM  
 BOSCH MAG. IGN.





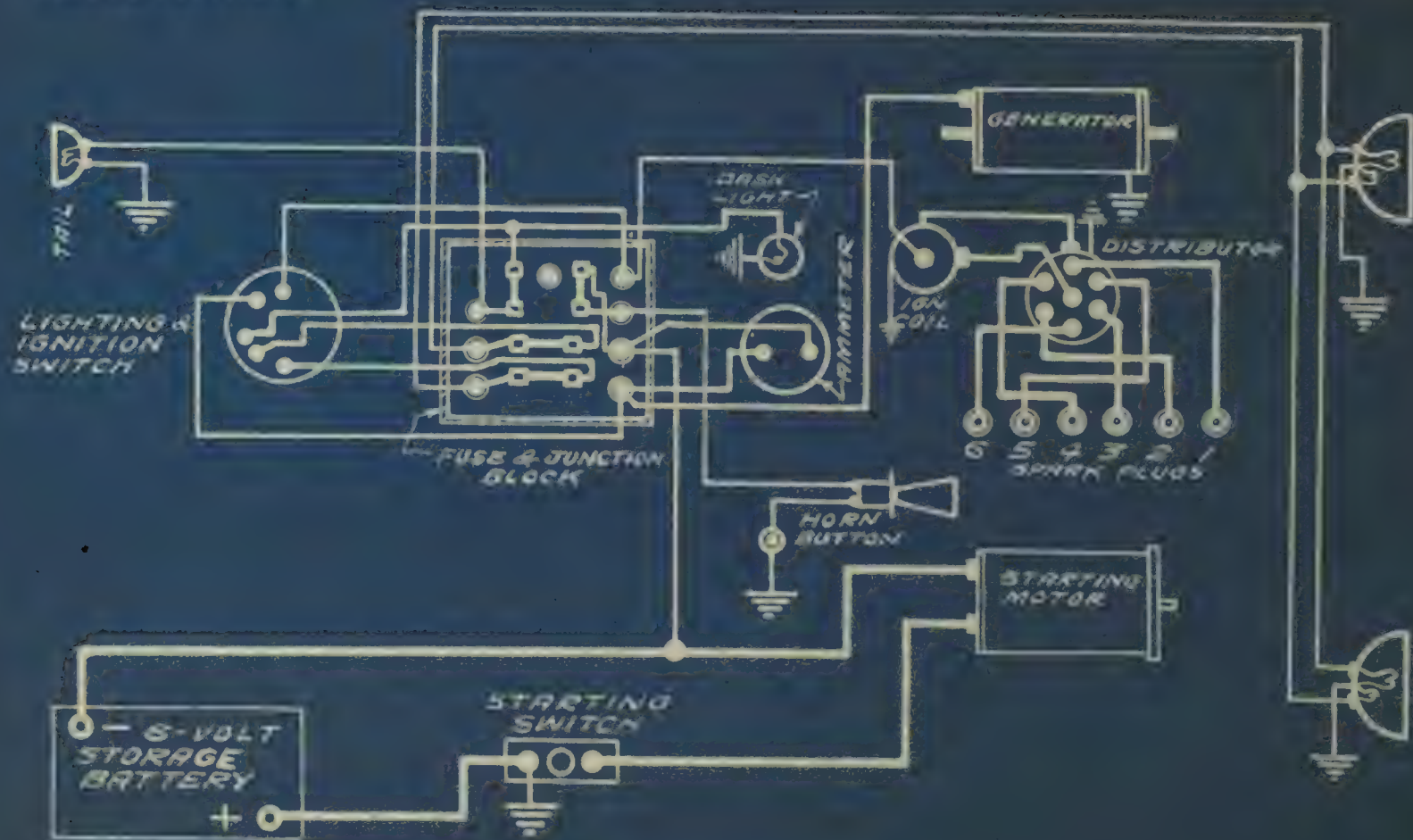


# NASH 1917 '671'

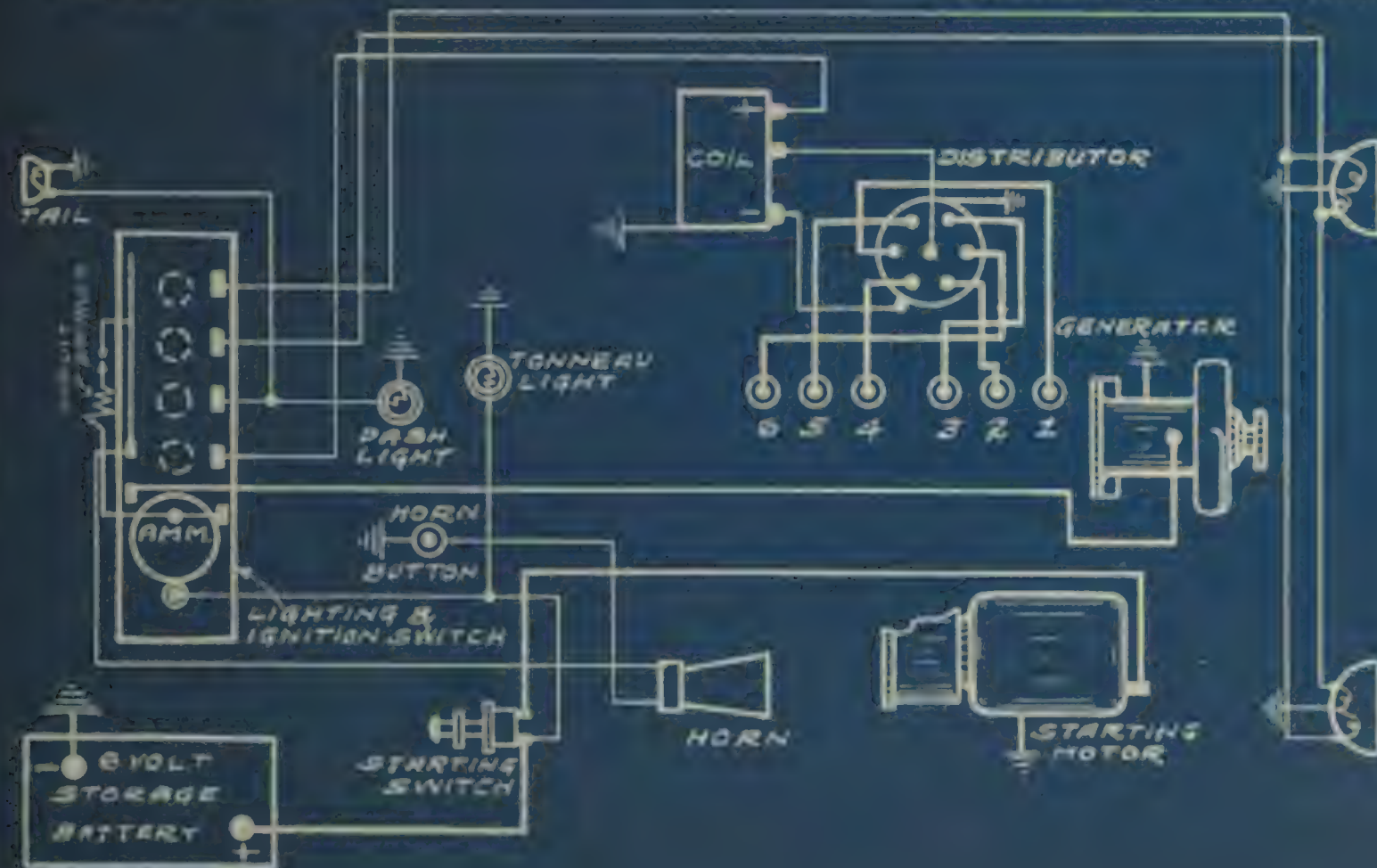
## BIGUR SYSTEM

### DELCO IGNITION

FROM DELCO MANUAL

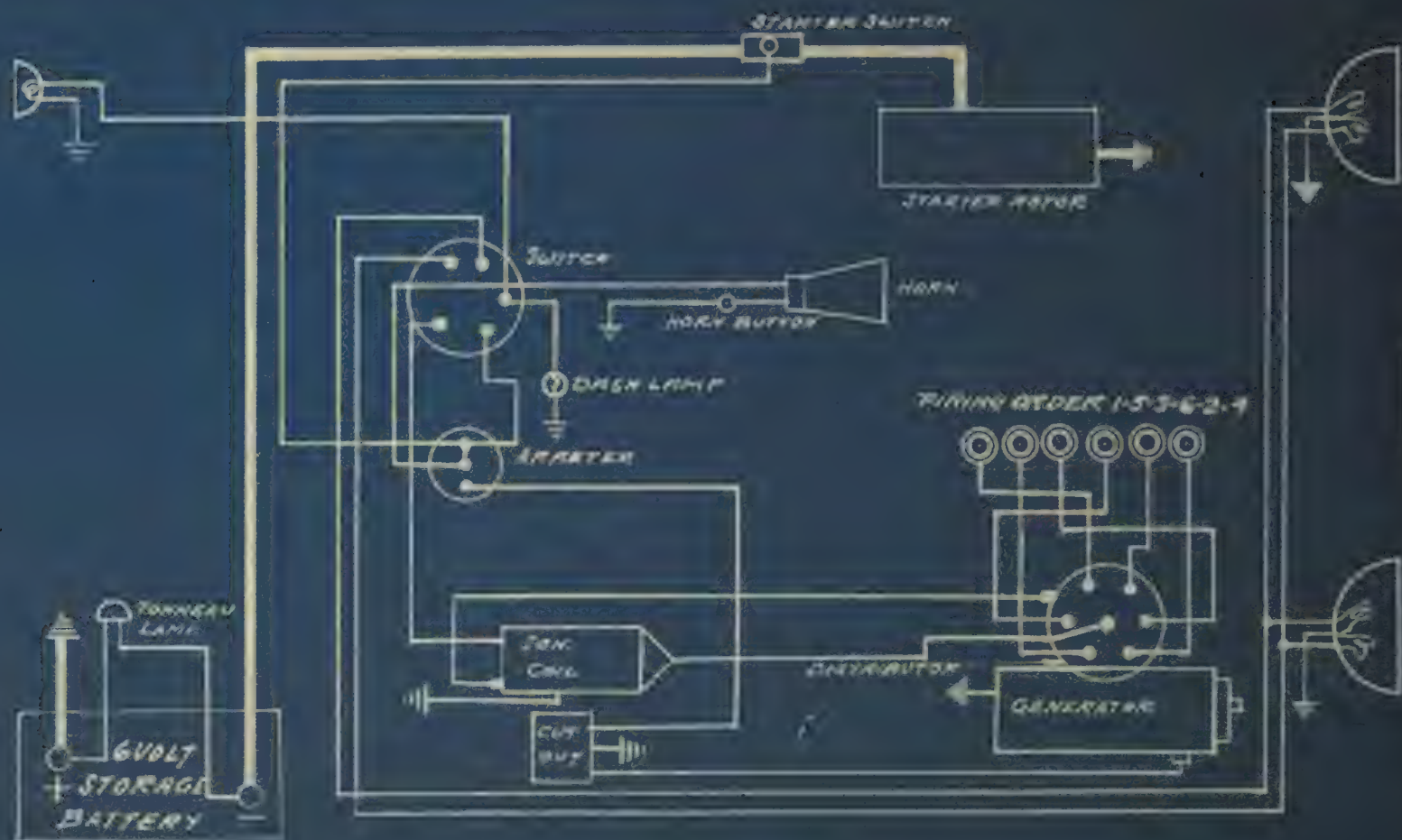


NASH 1917-18 "681-2-3-4" 1919-1920 "685-6-7"  
 DELCO SYSTEM.  
 FROM MFRS. B/P 32447



# NASH '6" MODEL 681 to 687 1919-20 WAGNER SYSTEM

FROM FILES EP 35865

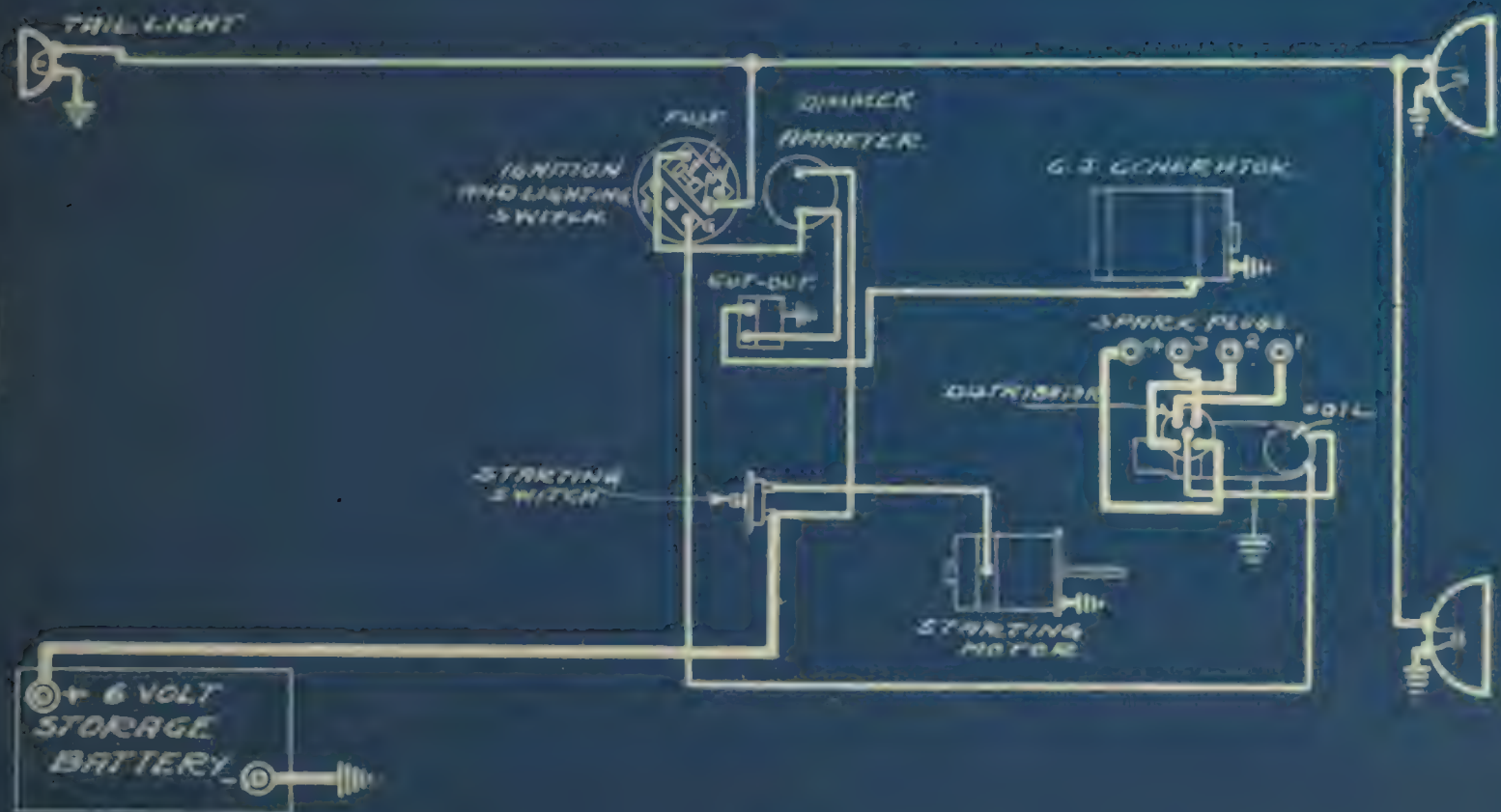




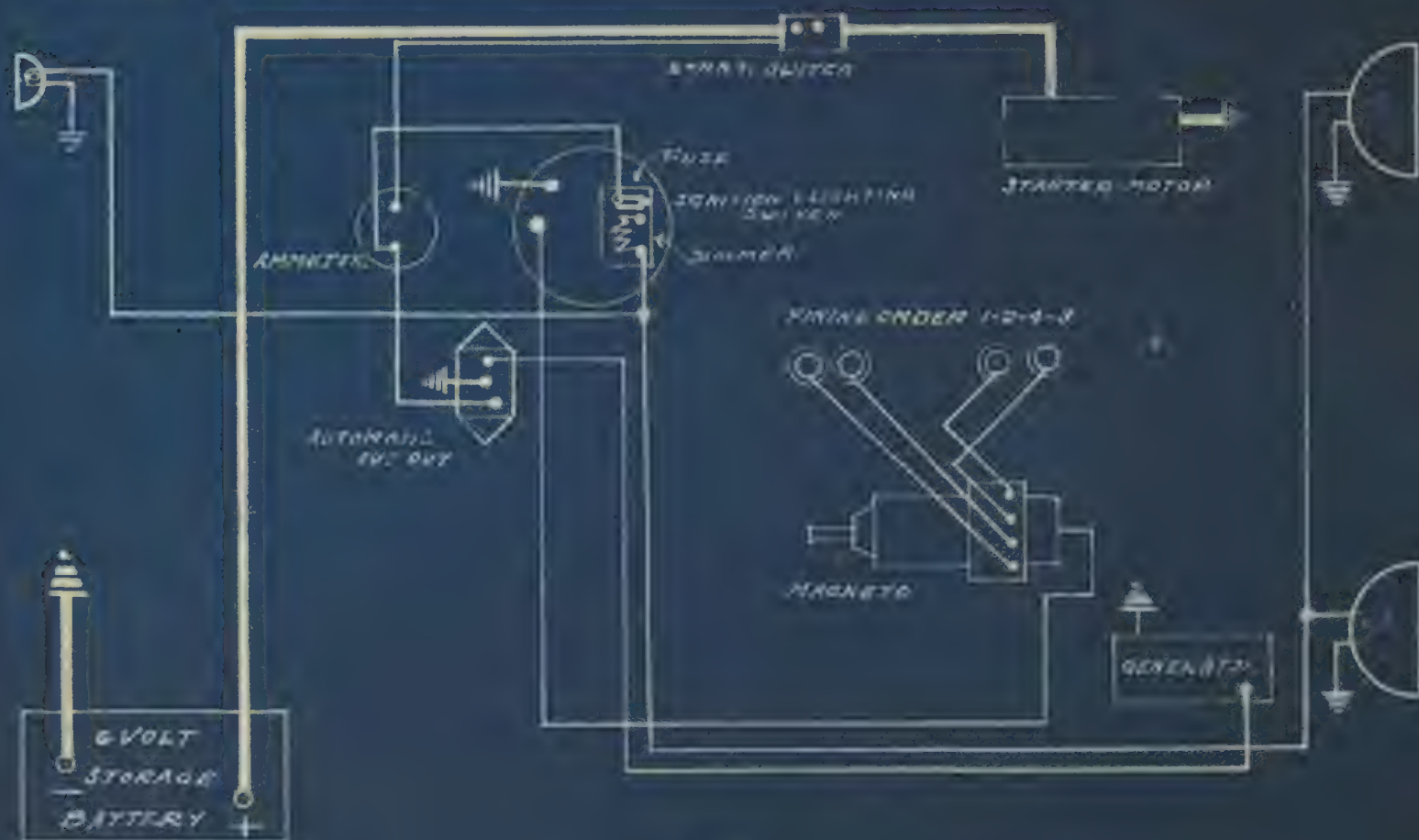
# NASH 1918 4 CYLINDER TRUCK AUTO-LITE STARTING & LIGHTING SYSTEM. CONNECTICUT IGNITION

FROM AUTO-LITE IN-SE BOOK.

AUTOMOTIVE PUBLICATIONS CO. CHICAGO, ILL.

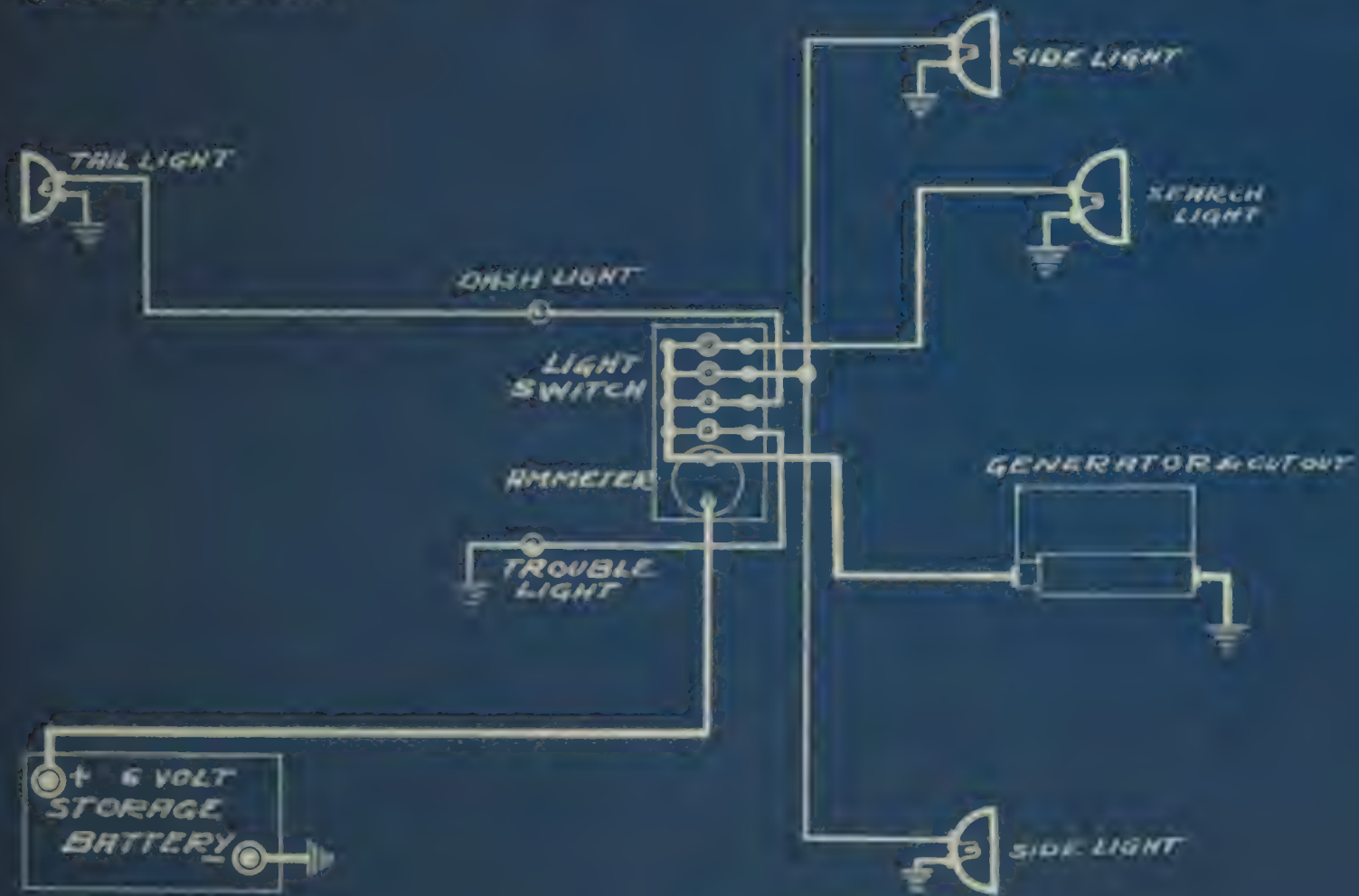


NASH TRUCK MODEL 2018-30 8 1919-20 FROM MAKE 38457  
 AUTO LITE STARTING & LIGHTING  
 EISEMANN MAG. IGN.



# NASH TWO-TON TRUCK BIJUR SYSTEM

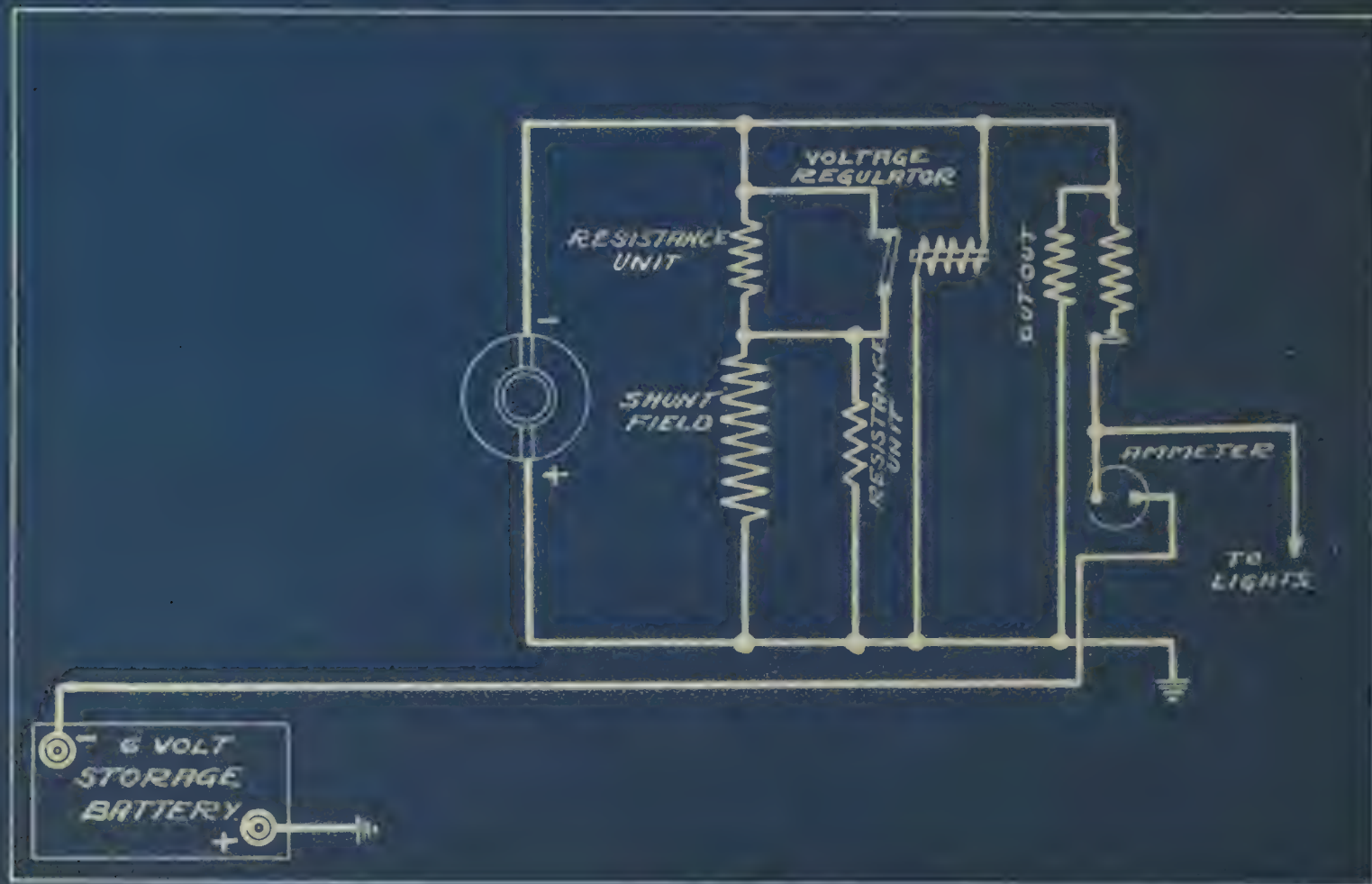
FROM MFG. HANDBOOK





# NASH TWO-TON TRUCK MODEL 4017-A FROM MFGR. HANDBOOK

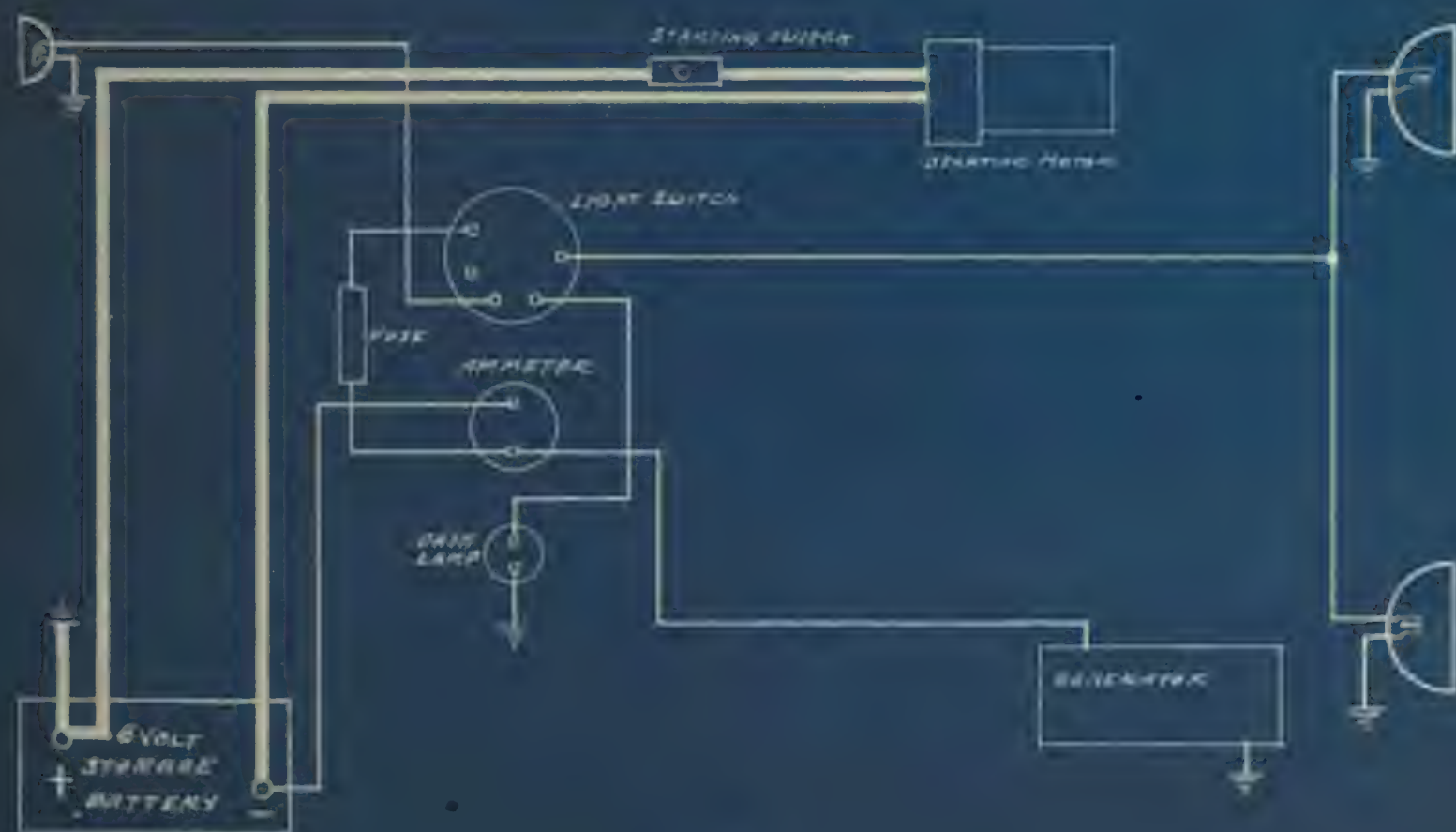
## BITUR SYSTEM INTERNAL CIRCUITS



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AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL.

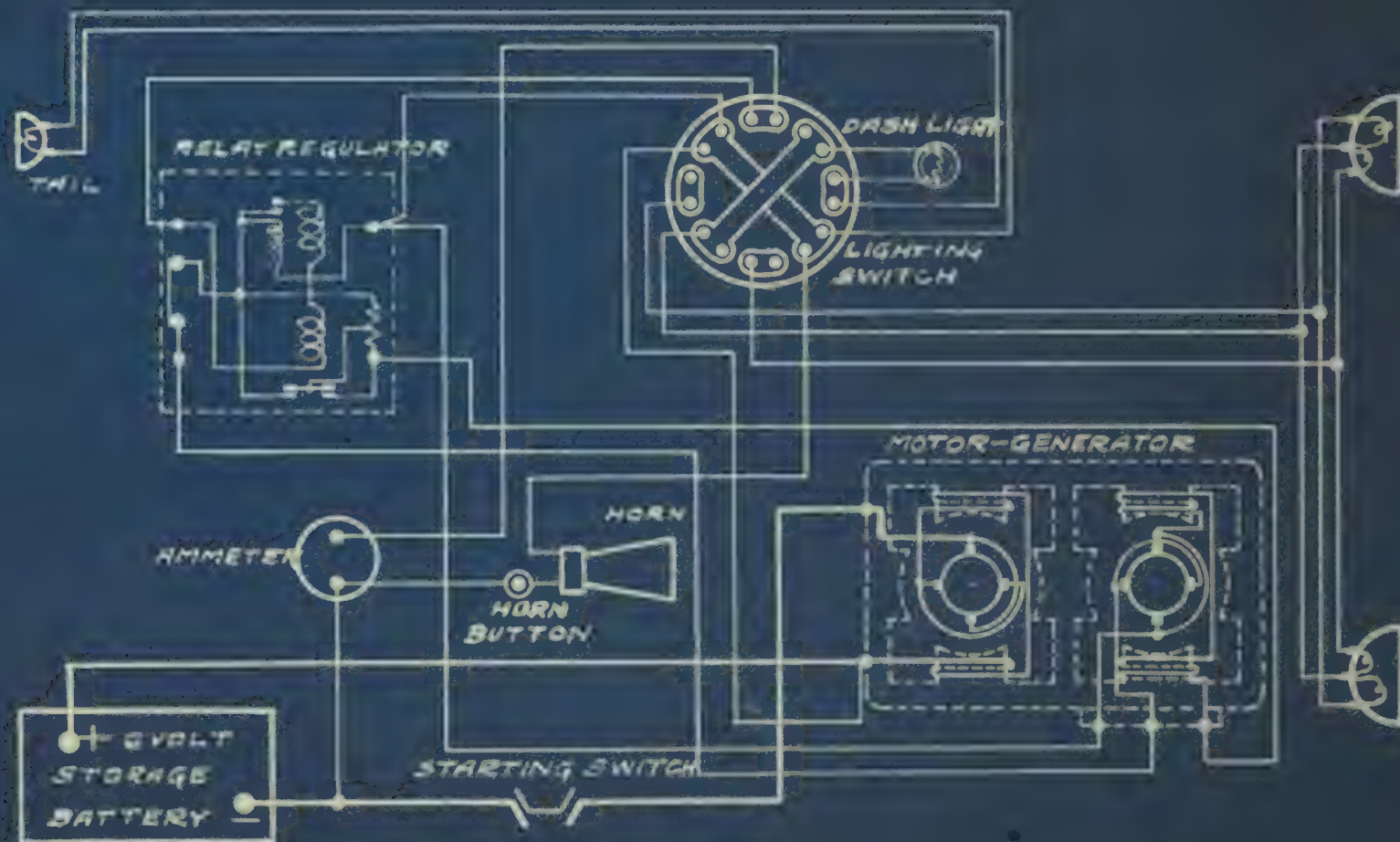
# NASH "QUAD" TRUCK ALL MODELS BIJUR SYSTEM.

Patent Applied for P. 30,334

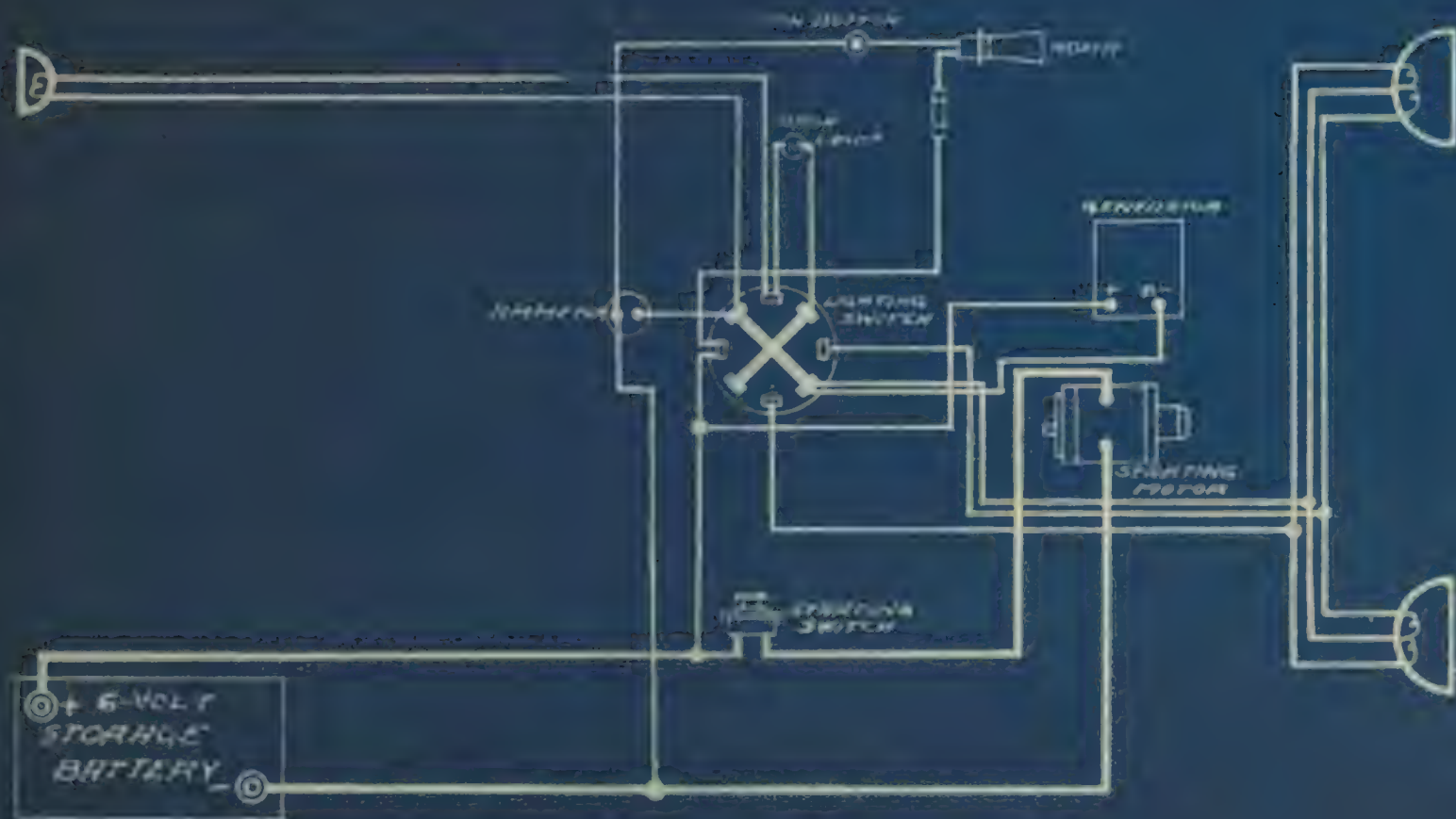


# NATIONAL 1914 "SIX" REMY SYSTEM

FROM REMY MANUAL

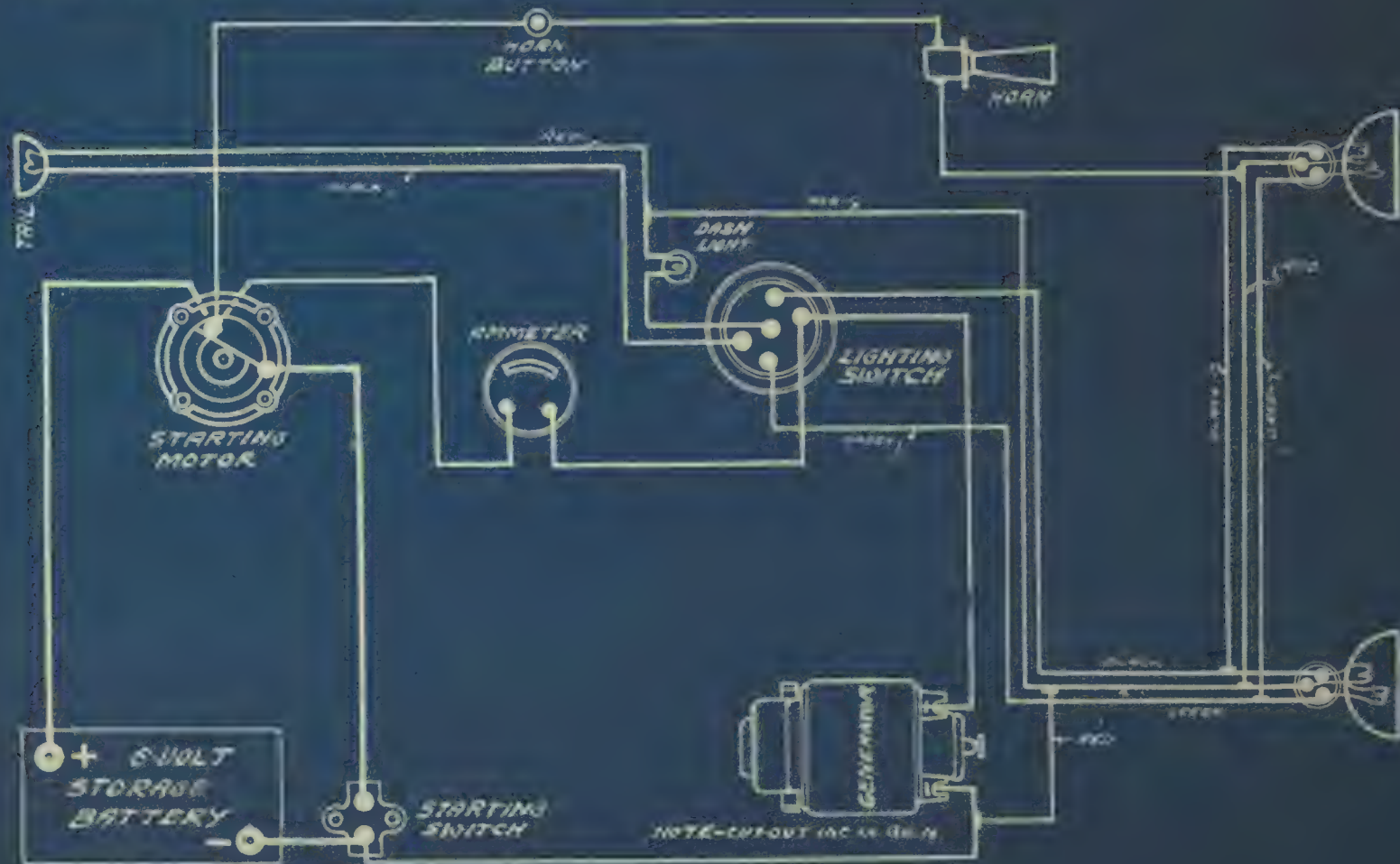






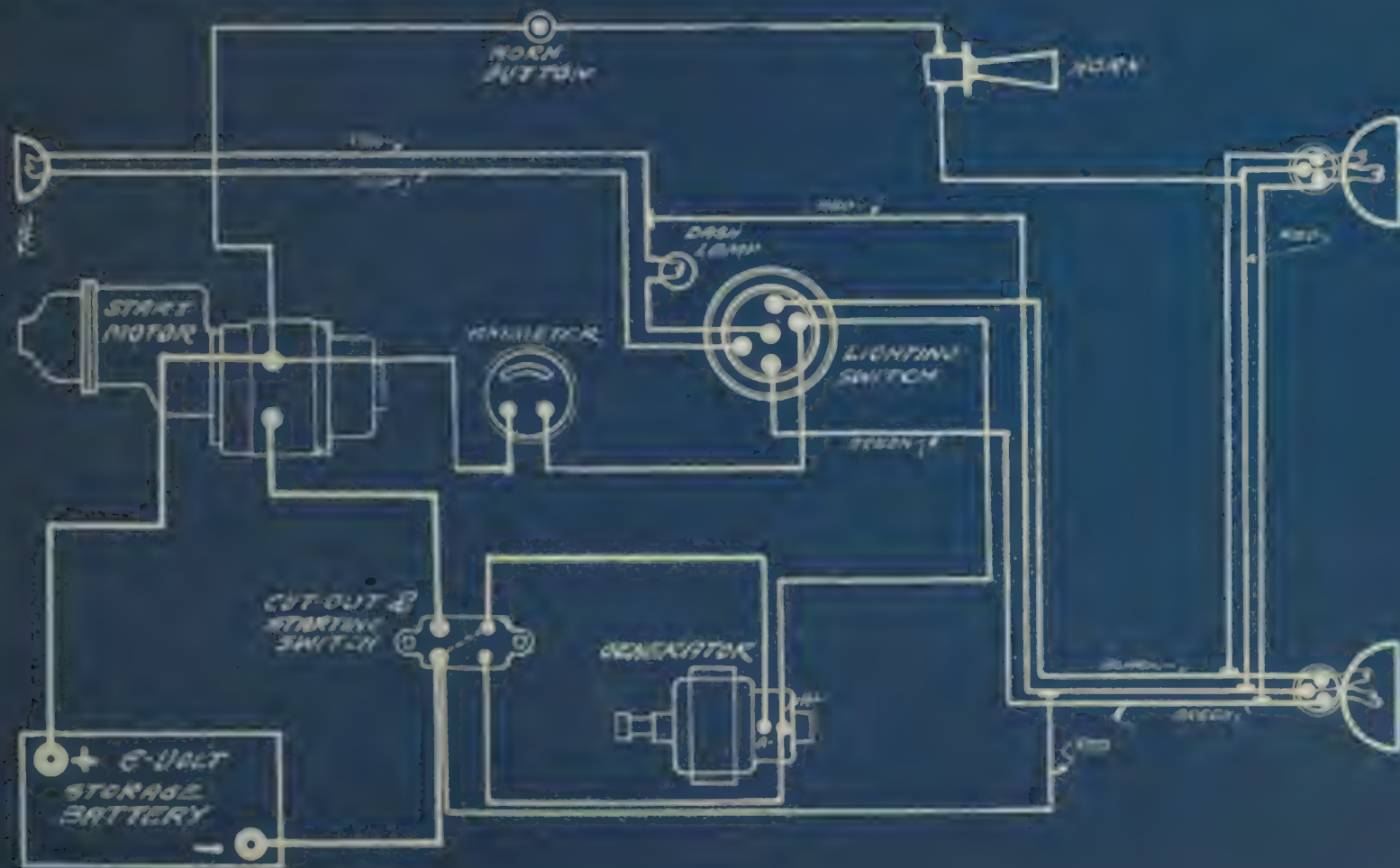
# NATIONAL 1916 "HIGHWAY SIX" WESTINGHOUSE SYSTEM (SERIES-AC)

FROM REPAIR MANUAL



# NATIONAL 1916 "HIGHWAY TWELVE" WESTINGHOUSE SYSTEM

FROM MEN'S MANUAL

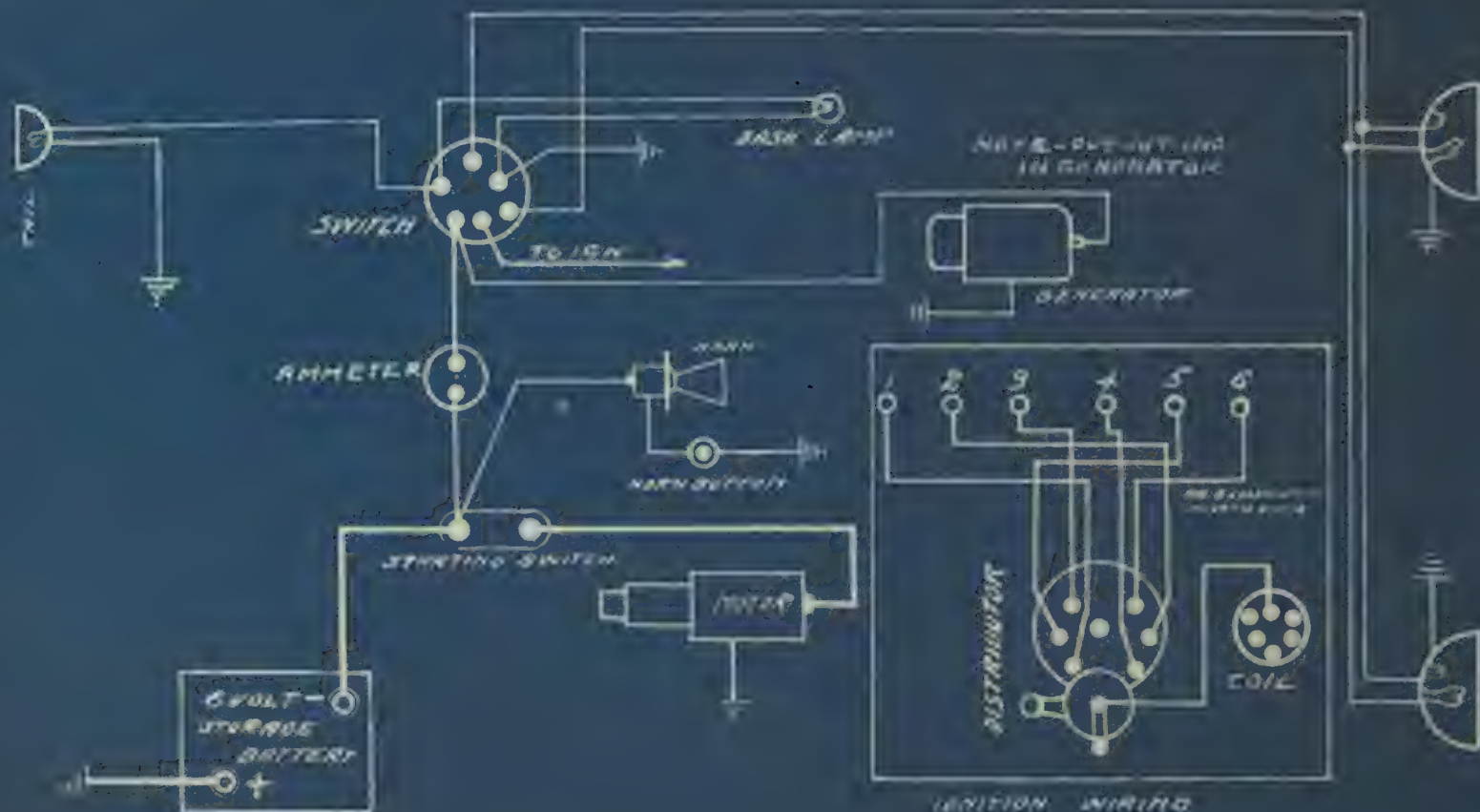




# NATIONAL HIGHWAY SIX 1917-8

WESTINGHOUSE SYSTEM

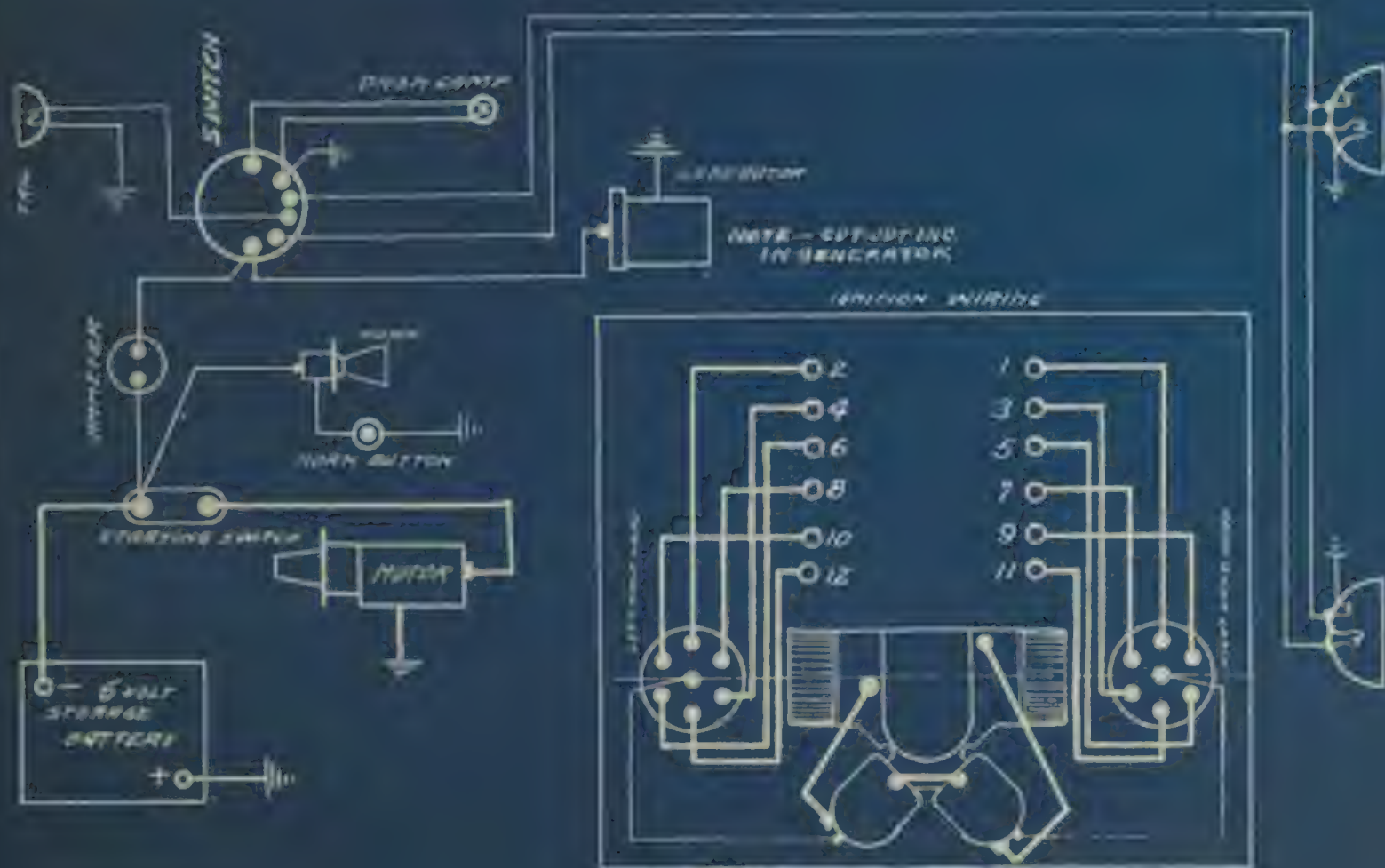
FROM FACTORY BOOK



# NATIONAL HIGHWAY TWELVE 1917-8-9.

BIG-4 SYSTEM - DELCO 16N.

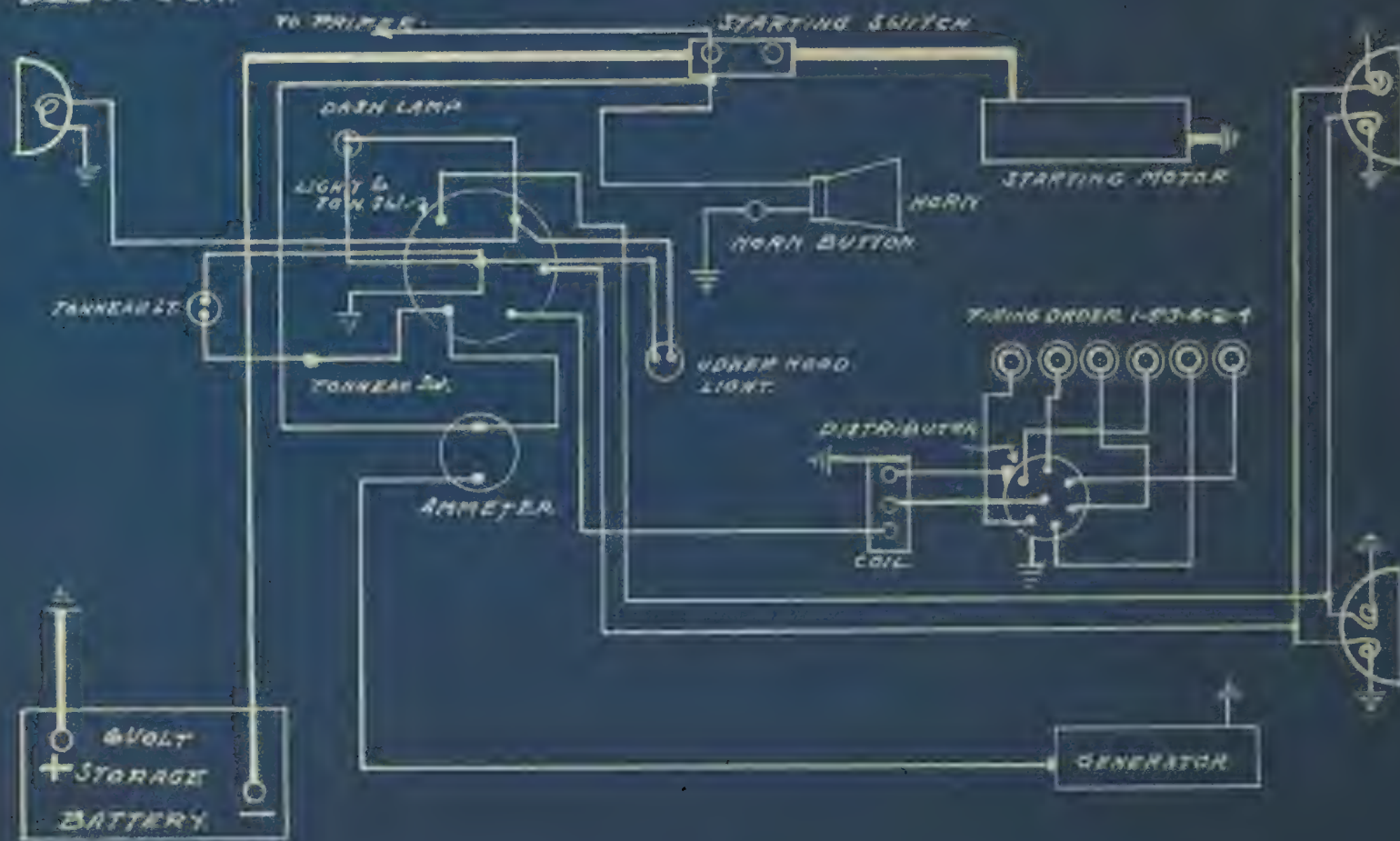
FROM FACTORY BOOK



# NATIONAL SEXTET 1920

WESTINGHOUSE START & LIGHT  
DELCO IGN.

FROM NPS 21 12518

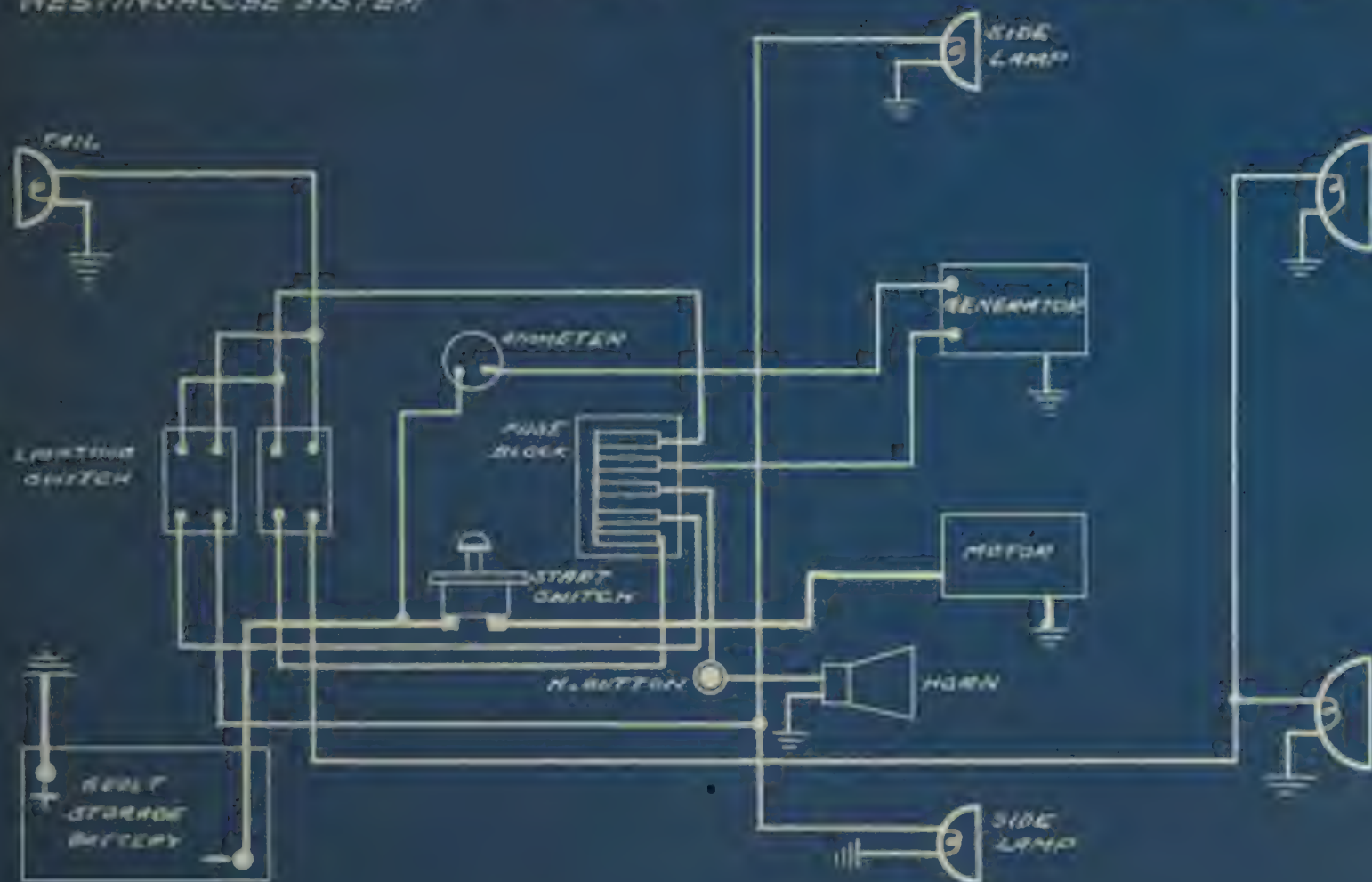


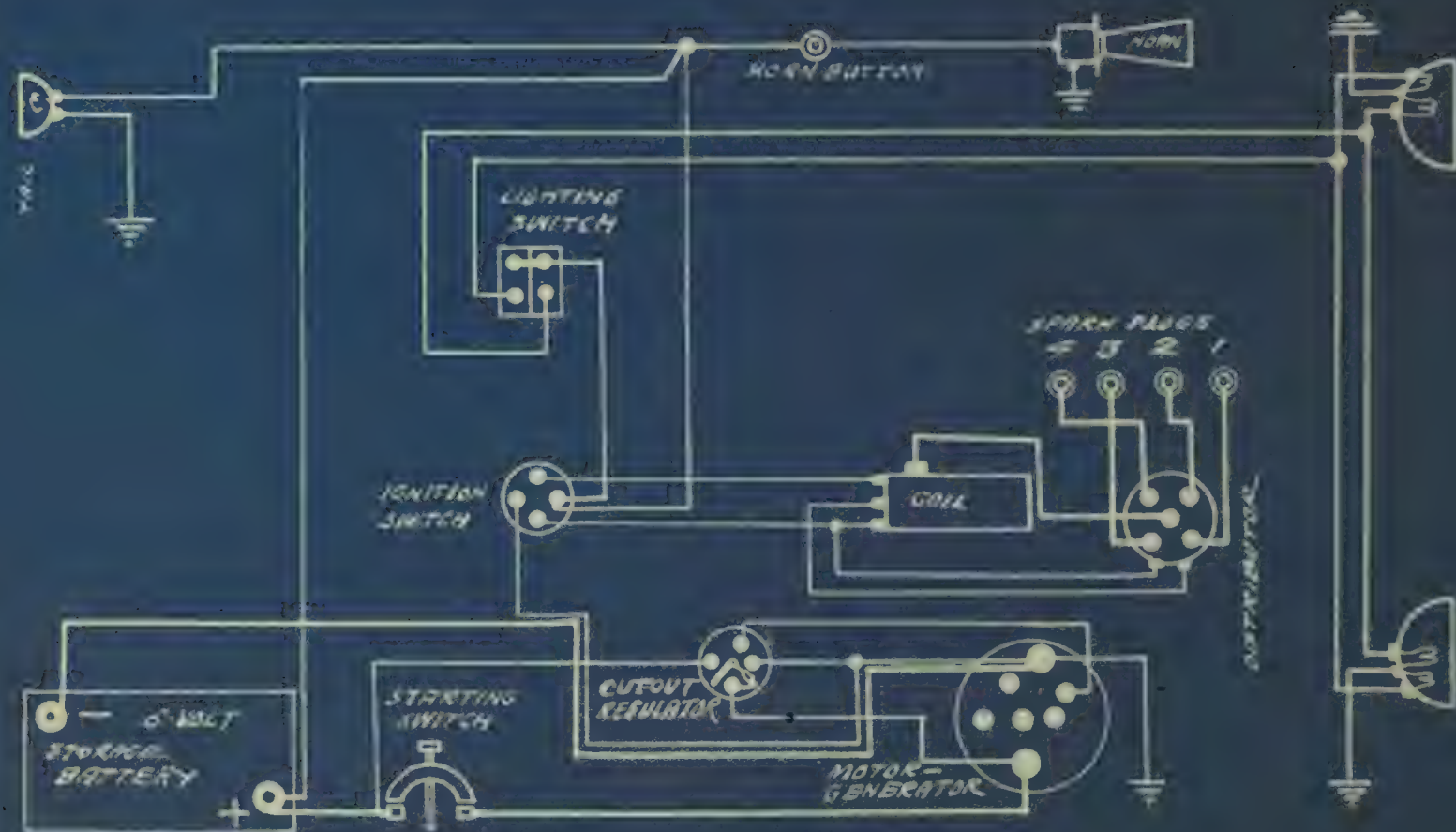


# NELSON LE MOON TRUCK

WESTINGHOUSE SYSTEM

FROM WEST PLATE 84





800-441-1000

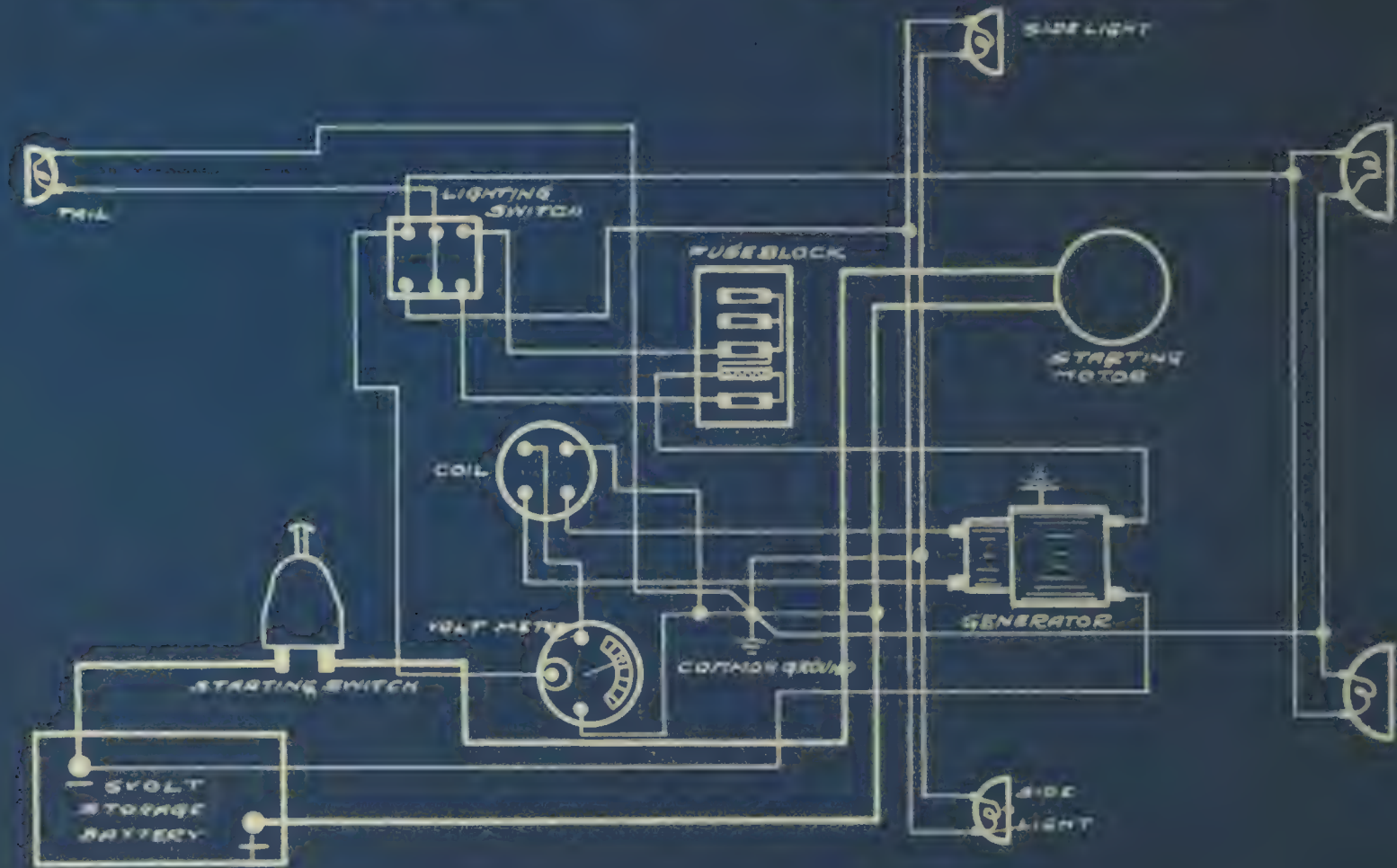
1





OAKLAND 1913 "35"  
WESTINGHOUSE SYSTEM

FROM MFRS. B/P 20128

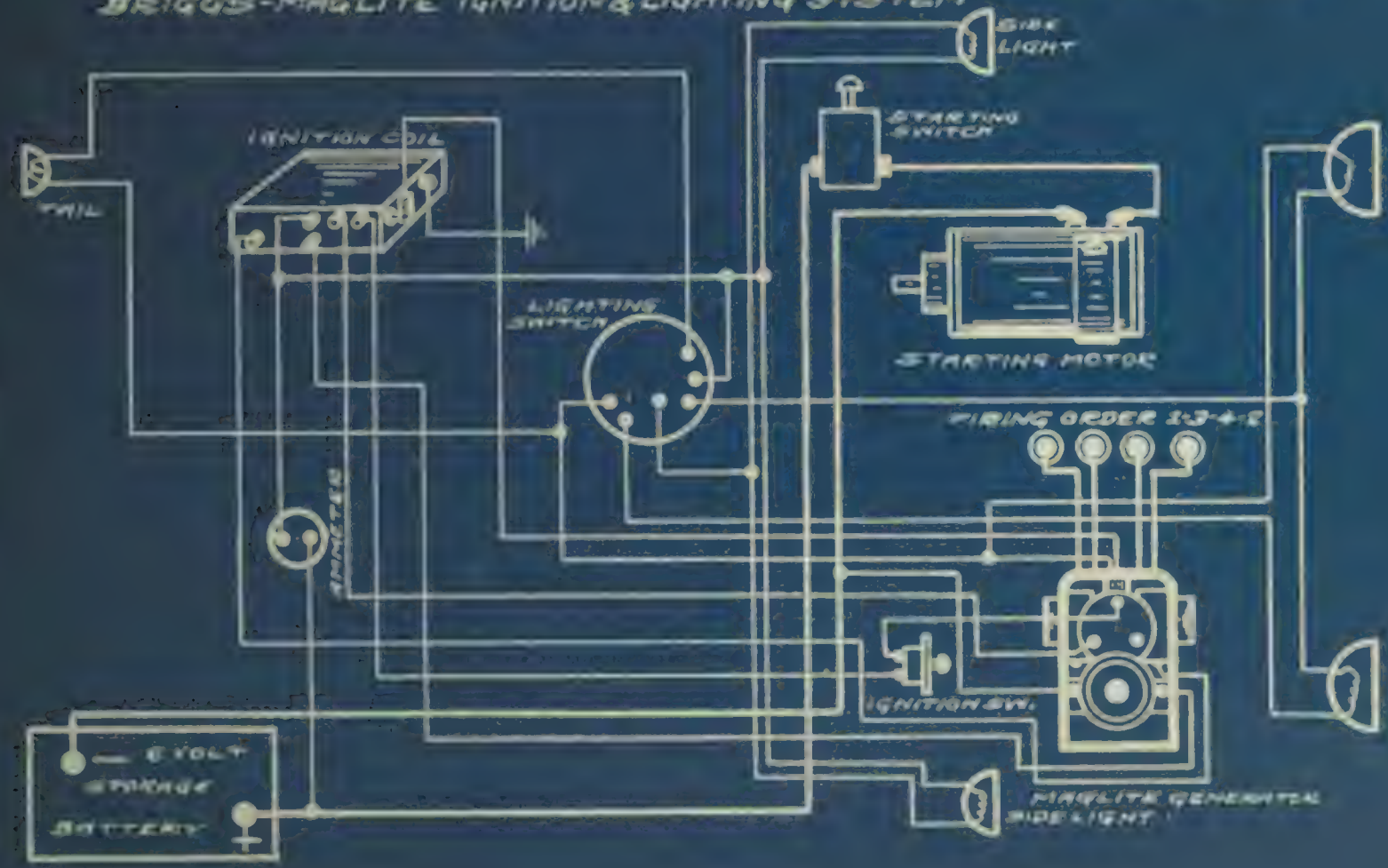


# OAKLAND 1913 "35" SPECIAL

DEACQ-STARTING SYSTEM

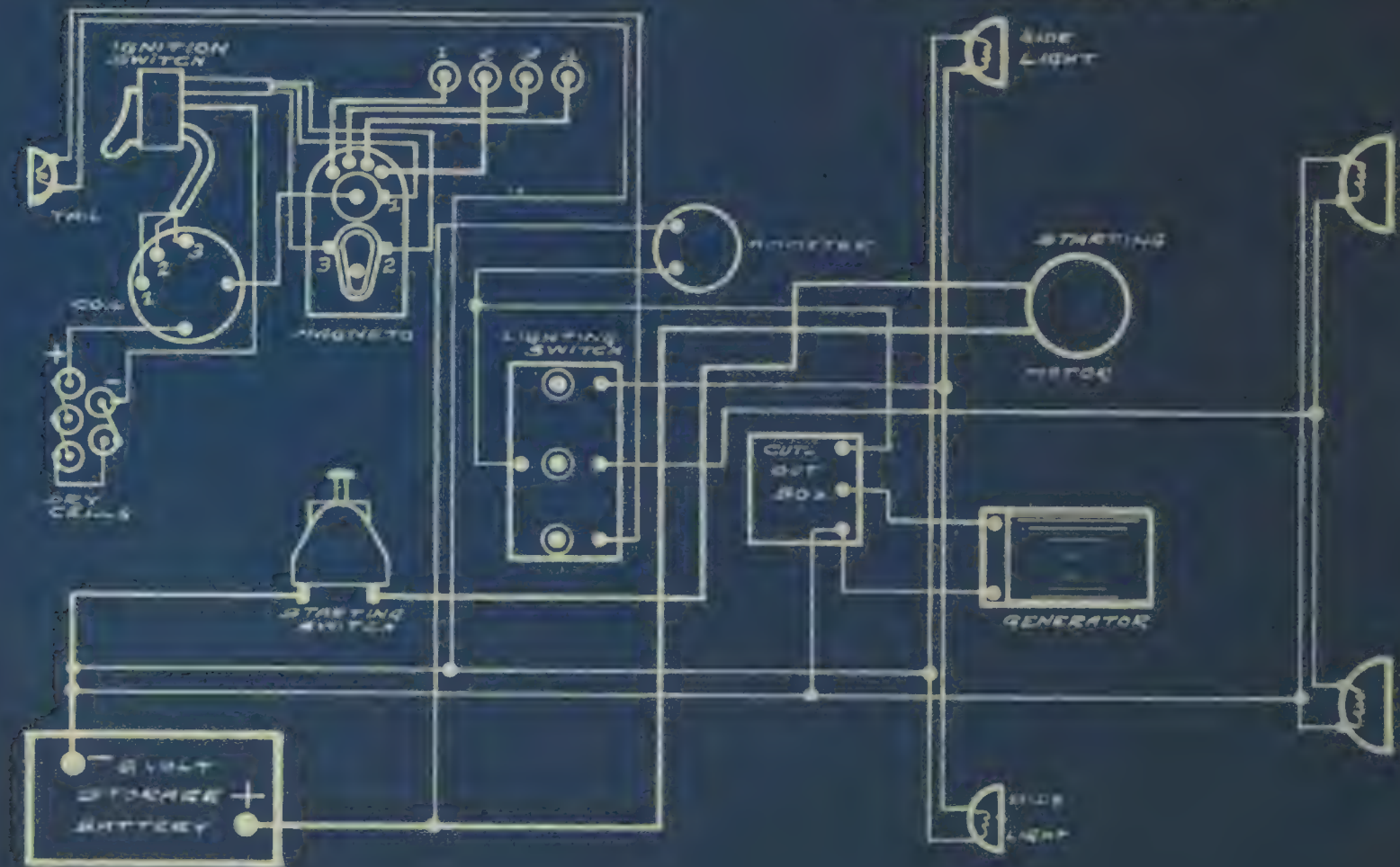
FROM MFRS. B/P 20194

BRIGGS-MAGLITE IGNITION & LIGHTING SYSTEM



# OAKLAND 1913 "35 & 42" DEACO SYSTEM

FROM MFRS. B/P 20168

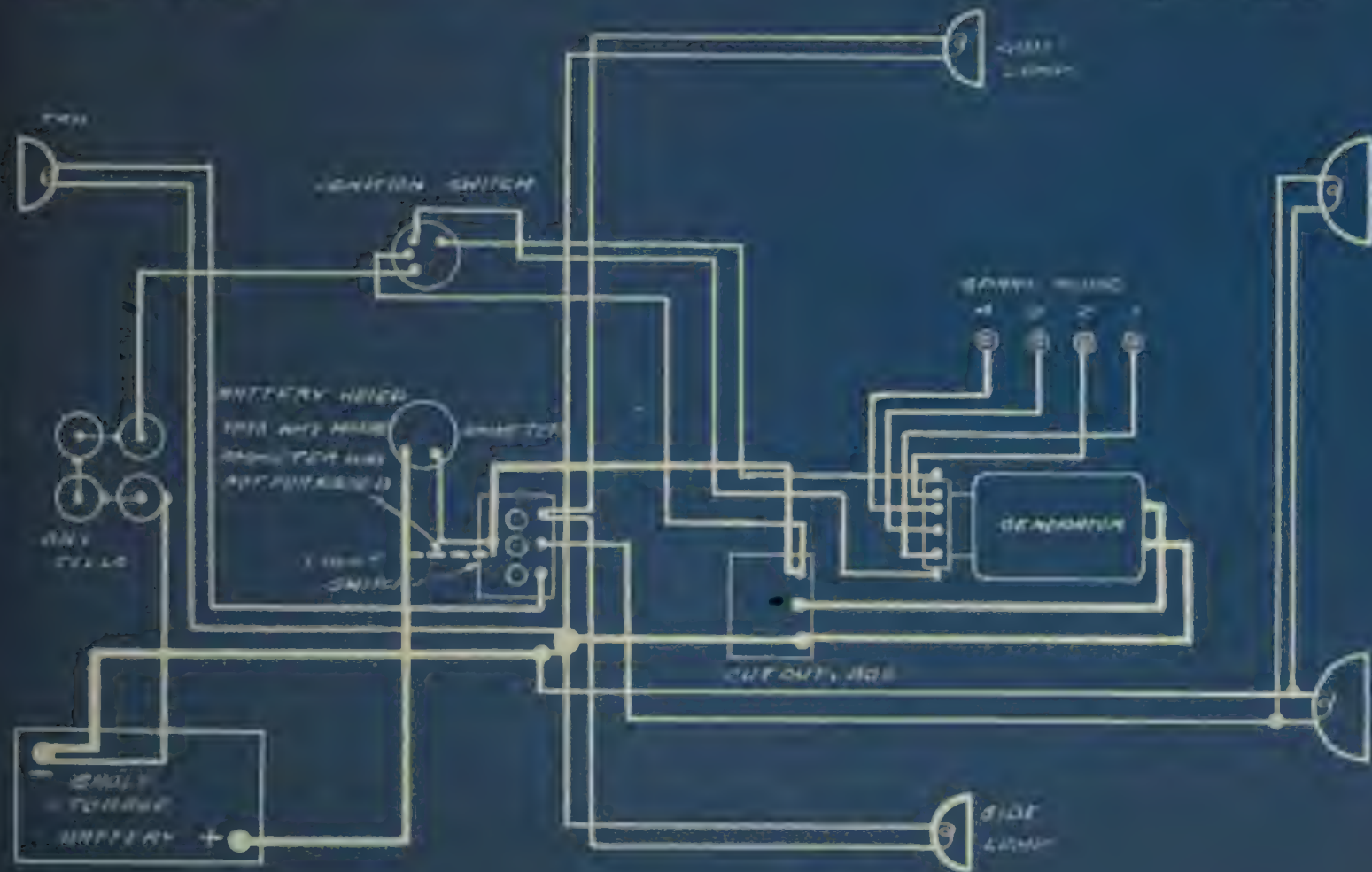




# OAKLAND MODEL "42" 1913

## WIRE SYSTEM

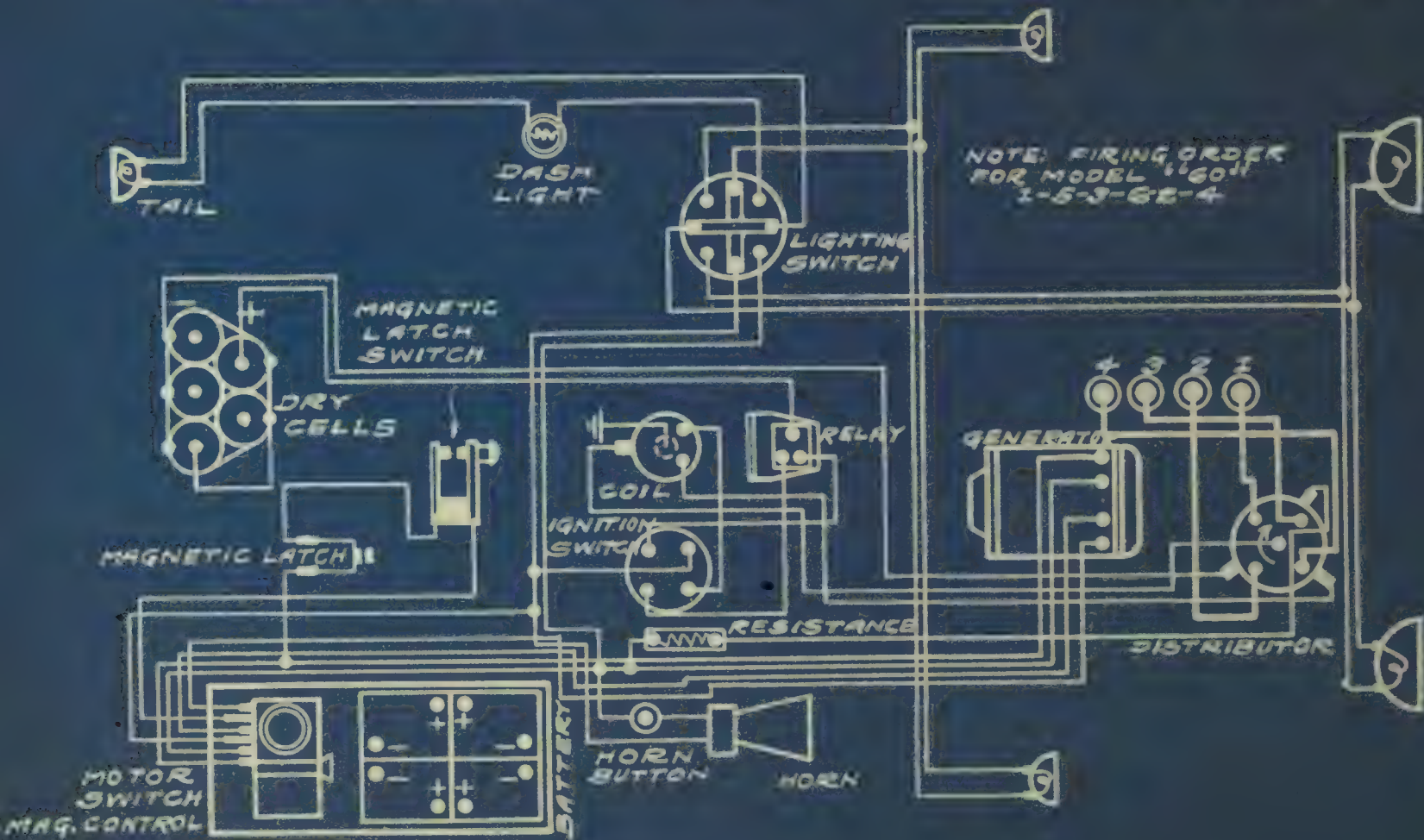
WIRE SYSTEM, A.P. 20221



# OAKLAND 1913 42860

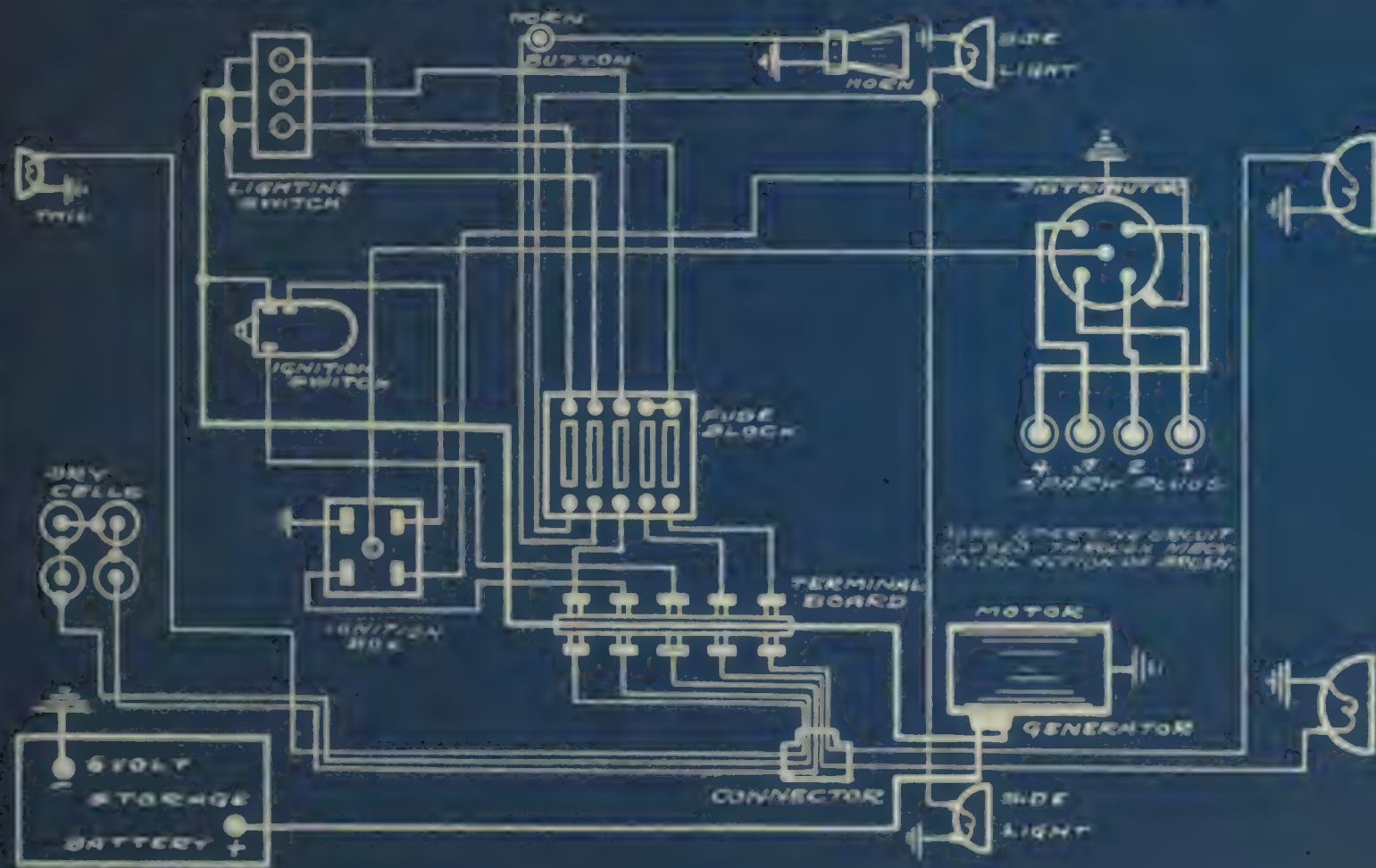
DELCO SYSTEM

FROM MFRS. B/P 20001-2



OAKLAND 1914 36  
DELCO SYSTEM

FROM MFRS. B/P 20129

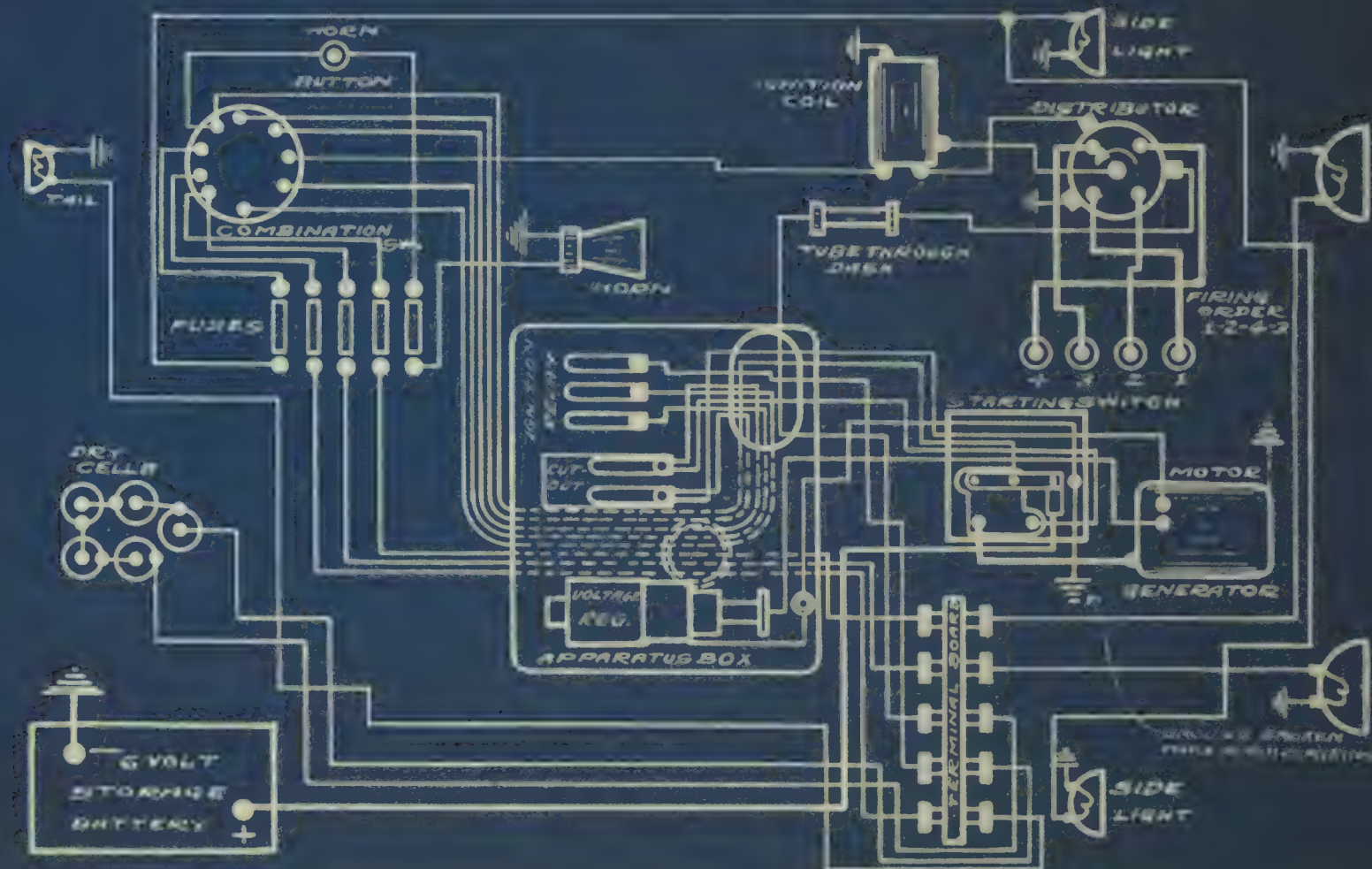




# OAKLAND 1914 43

## DELCO SYSTEM

FROM MFRS. B/P 20130

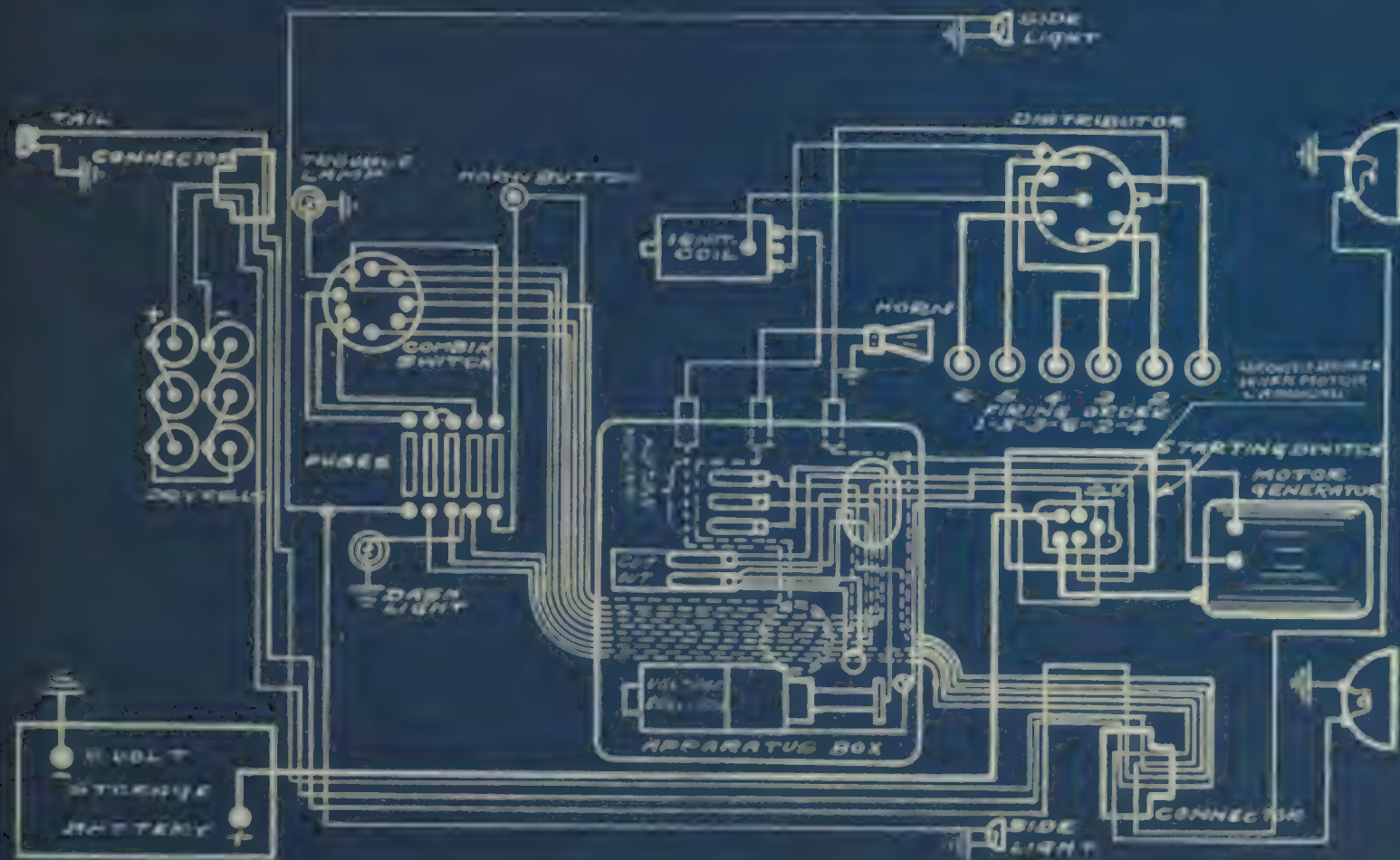


OAKLAND 1914  
DELCO SYSTEM

48862

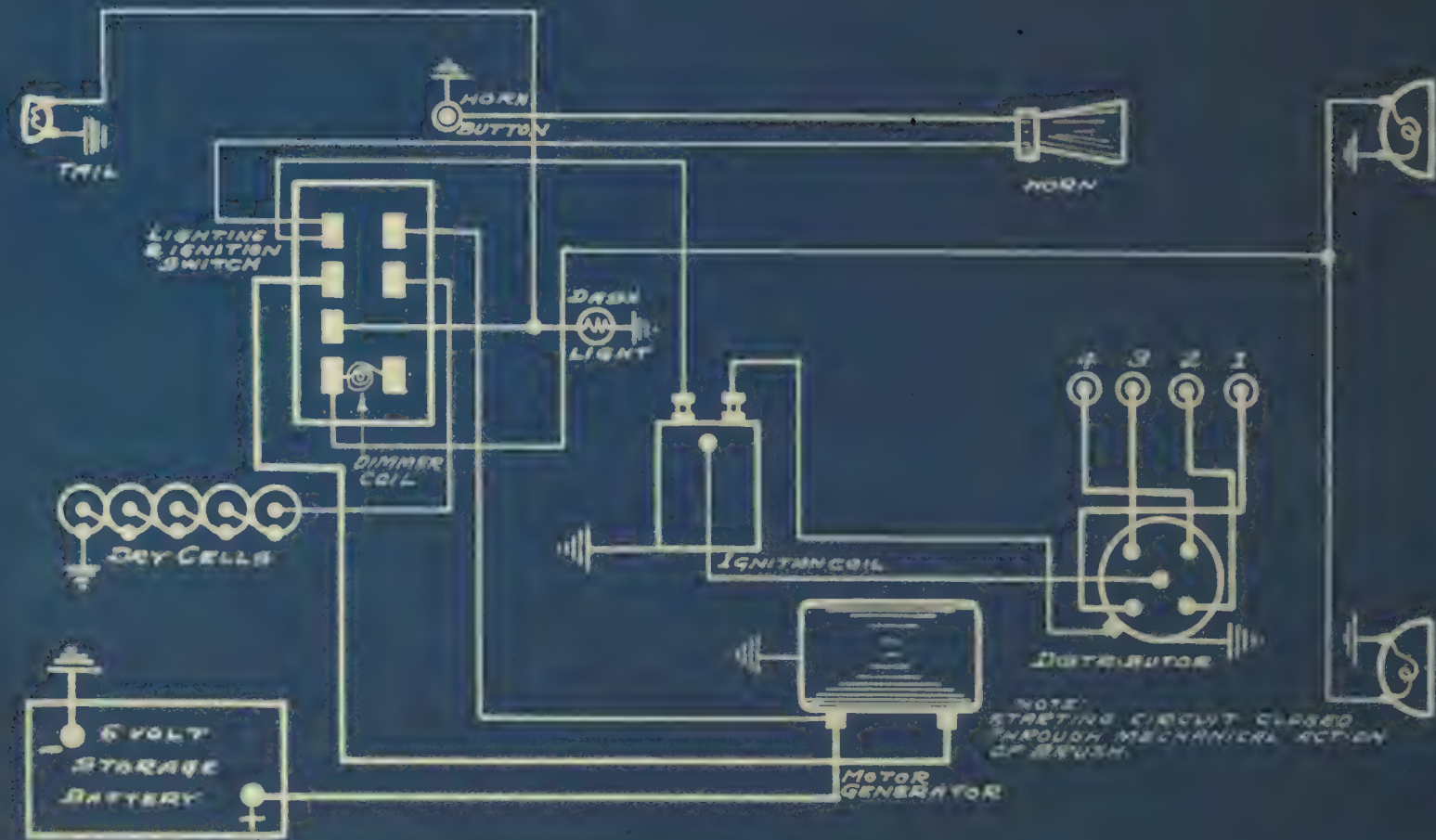
ENGIN MFGS. B/P R01278, 20158

AUTOMOBILE ELECTRICALS CO. CHICAGO, ILL.



# OAKLAND 1915 "37" DELCO SYSTEM

FROM MFRS. B/P 20180

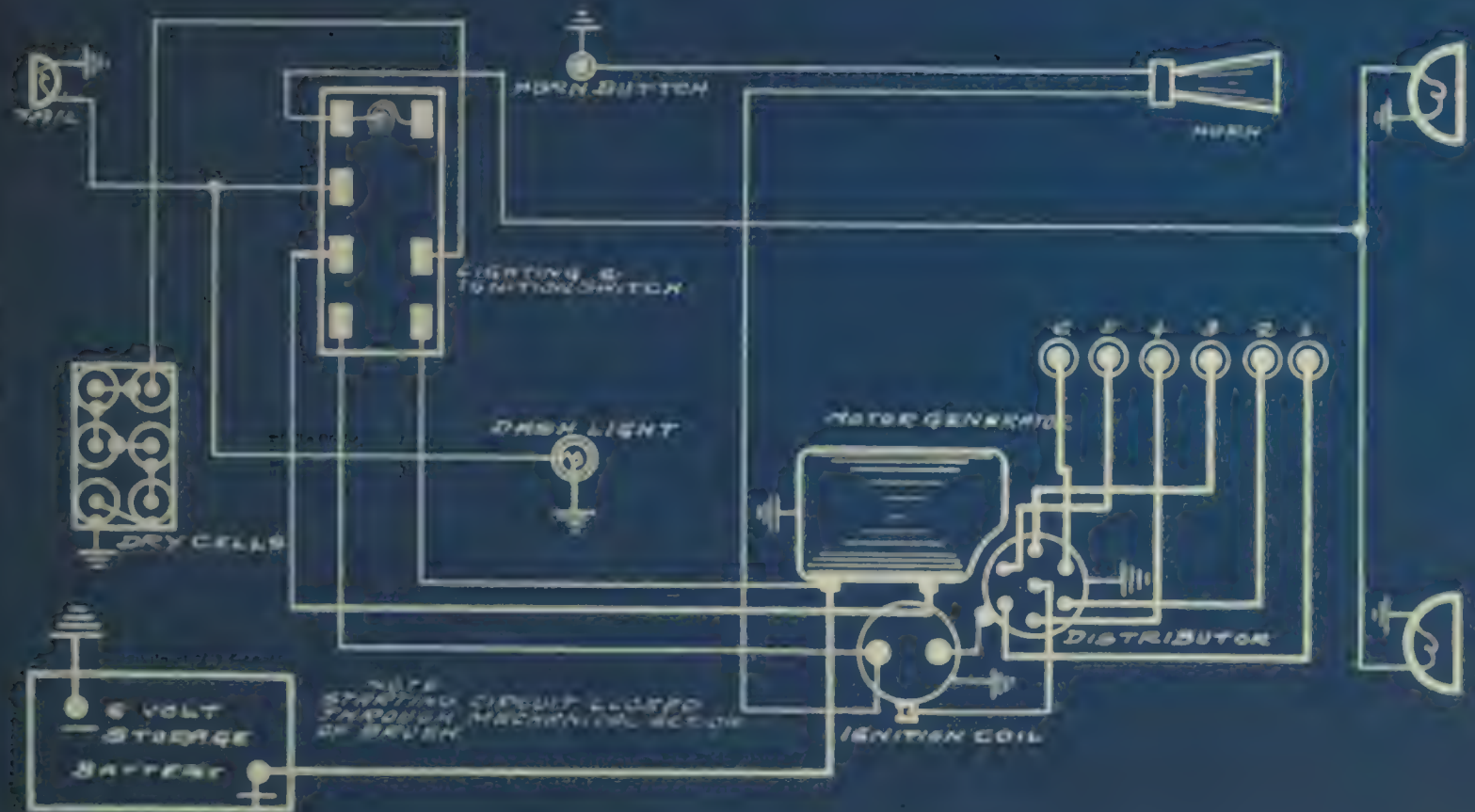




# OAKLAND 1915 "49" DELCO SYSTEM

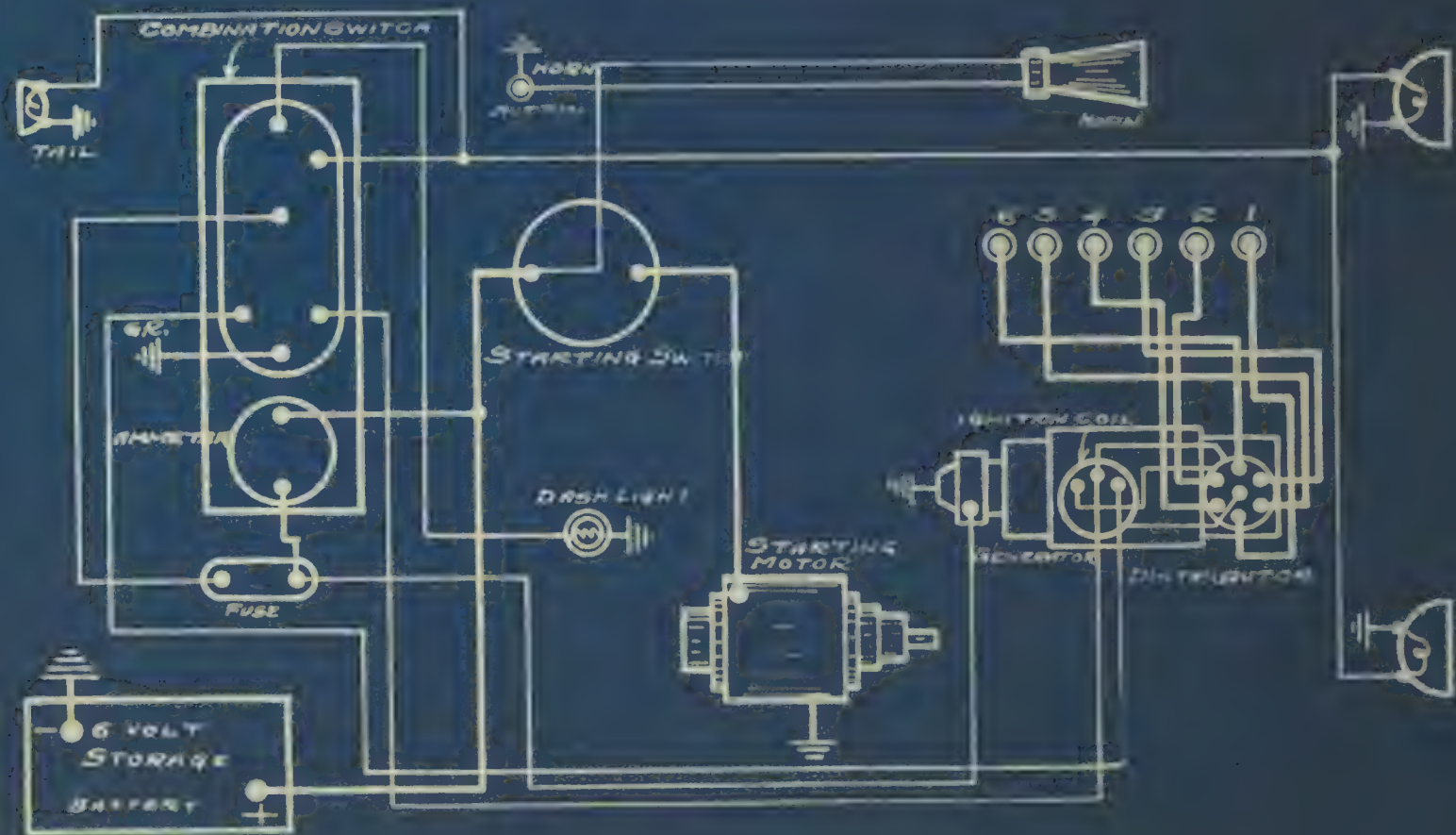
FROM MFRG S/P 20200

AUTOMOTIVE EQUIPMENT CO.



# OAKLAND 1916 '32" REMY SYSTEM

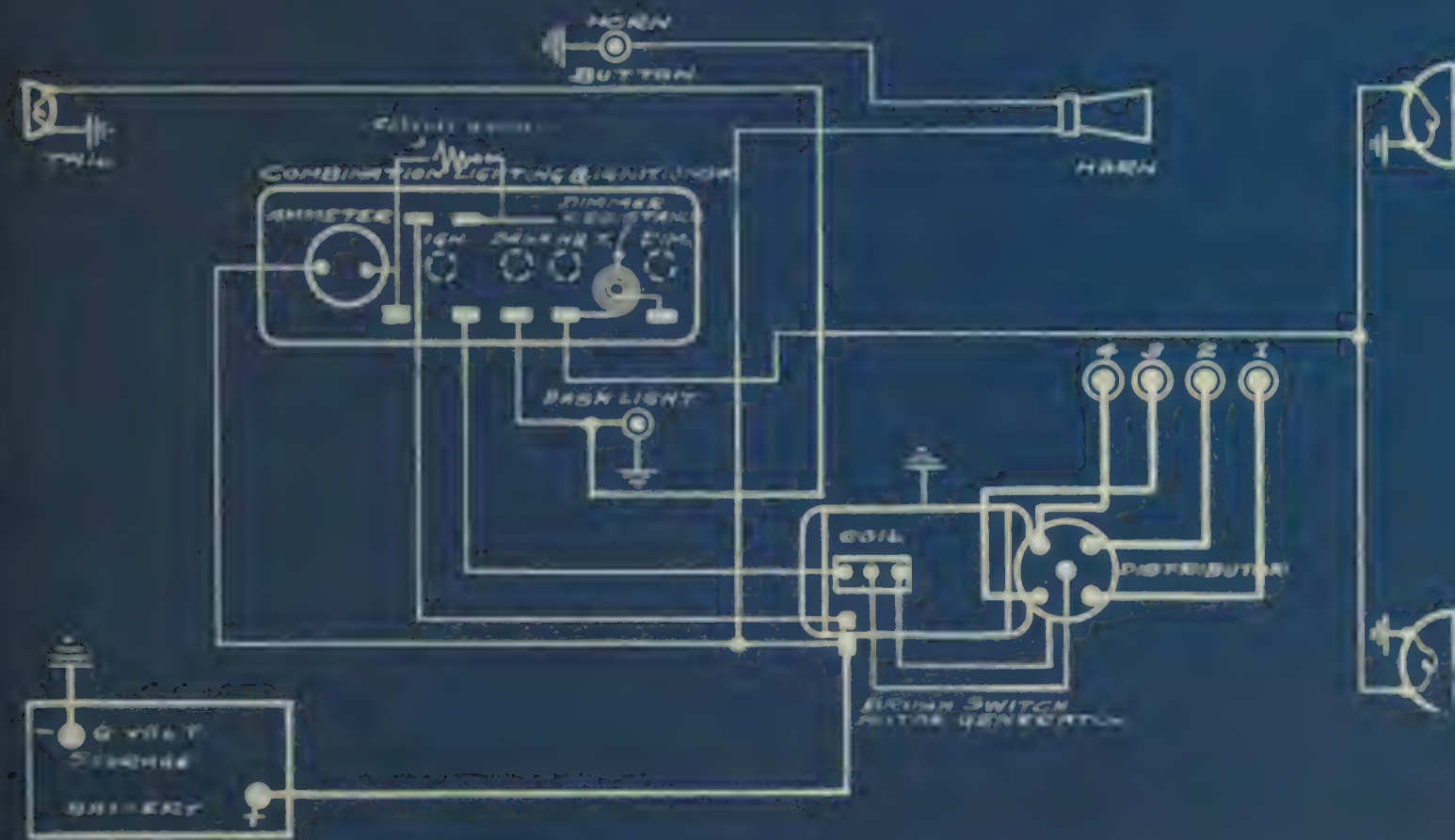
FROM MFRS. B/P 20244



# OAKLAND 1916 "38"

DELCO SYSTEM

FROM MFRS. B/P 20215

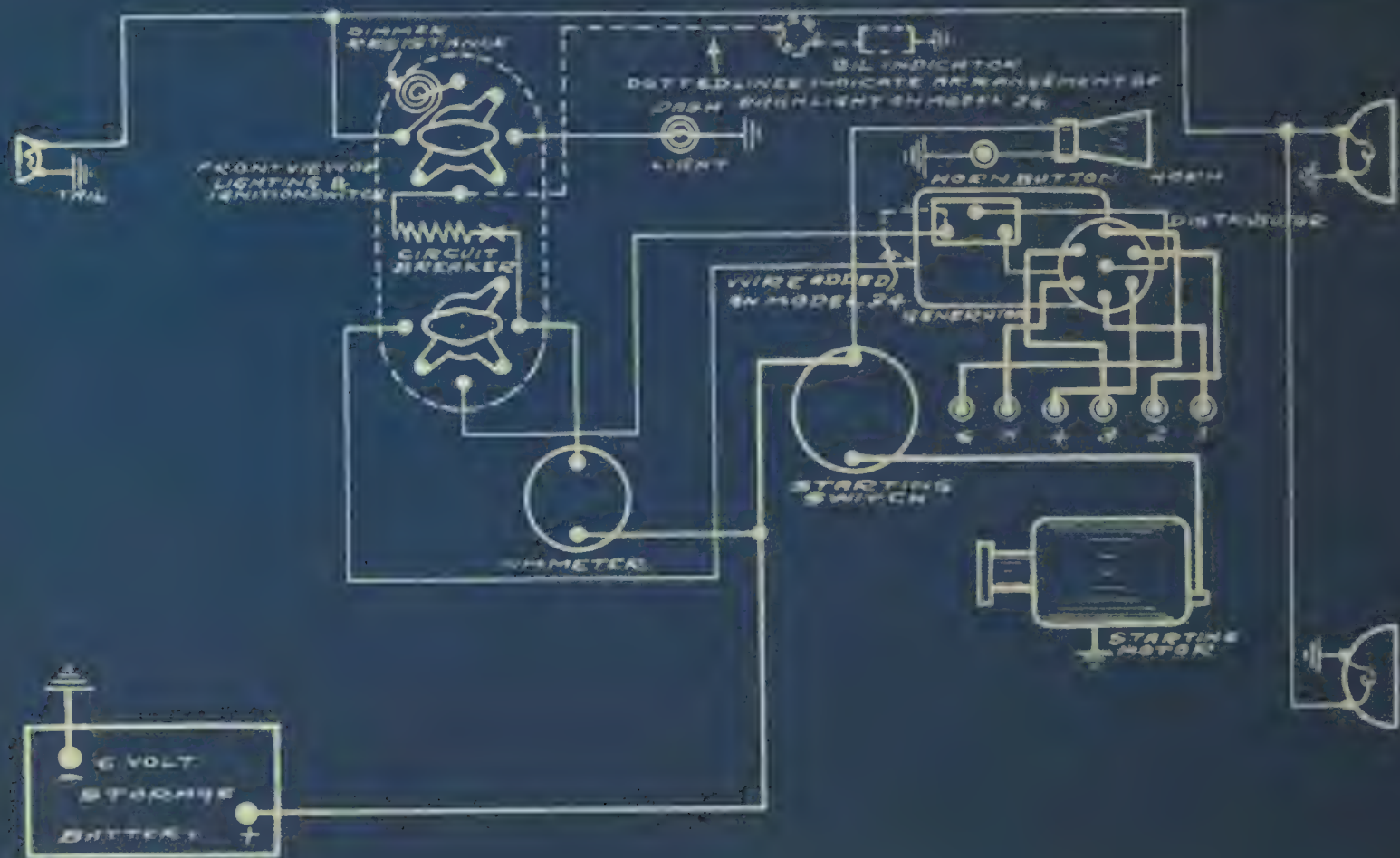




# OAKLAND 1916- 32-B & 1917- 34

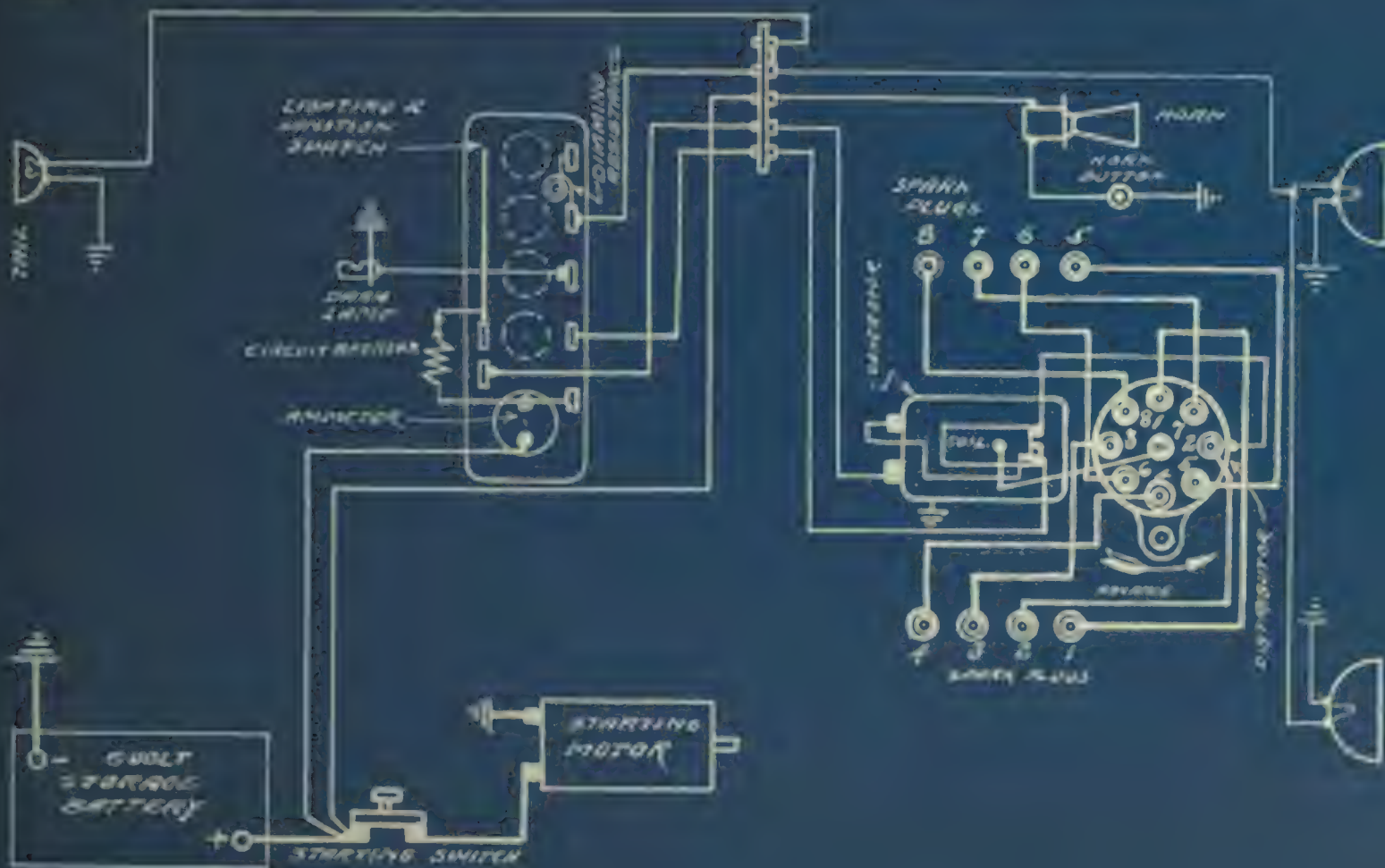
DELCO SYSTEM

FROM MFRS. B/P 20246 & 20251



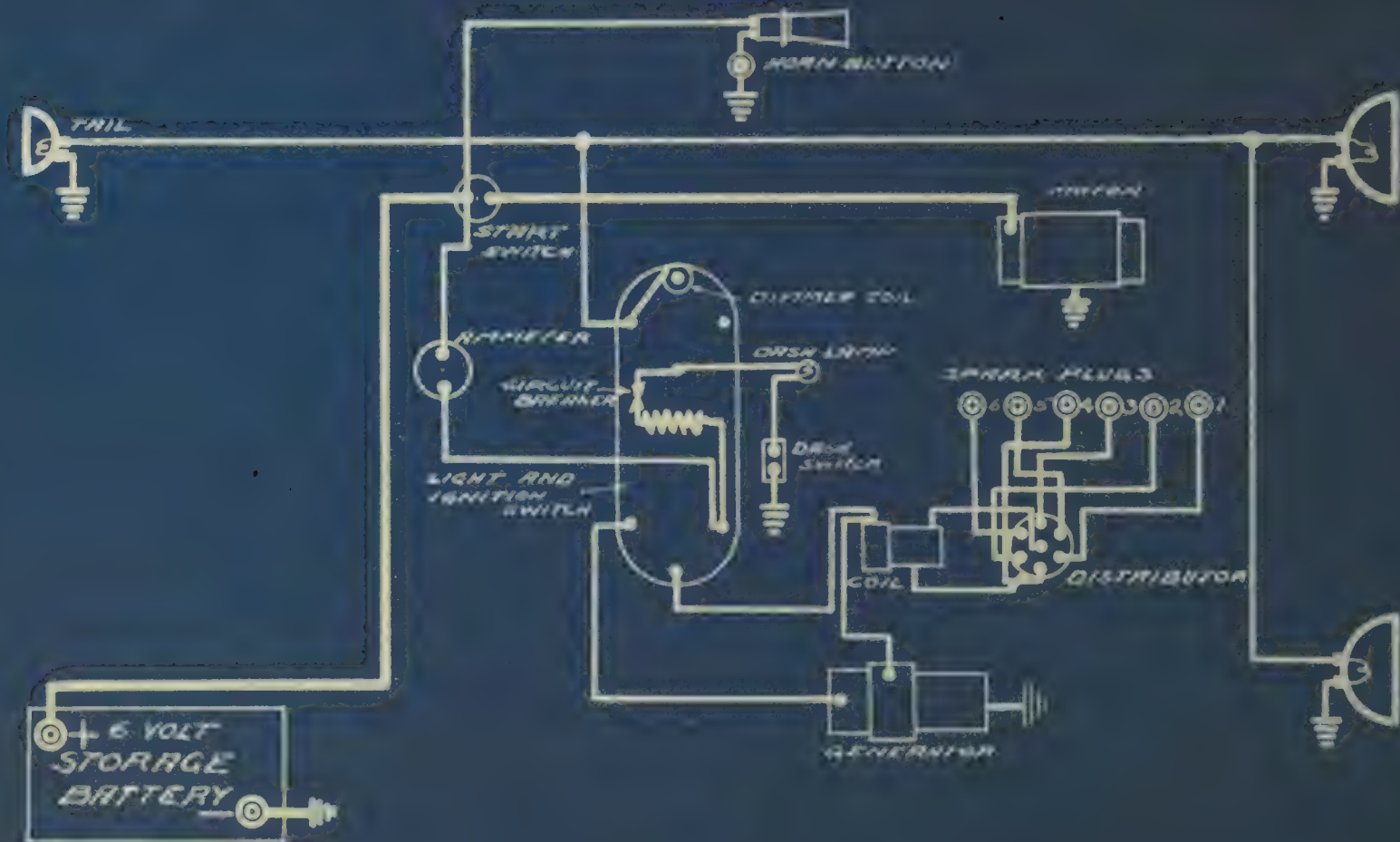
# OAKLAND 1916-7 50 DELCO SYSTEM

FROM MAR. 24 2028B



**ORLAND 1917 MODEL 34**  
**DELCO SYSTEM**

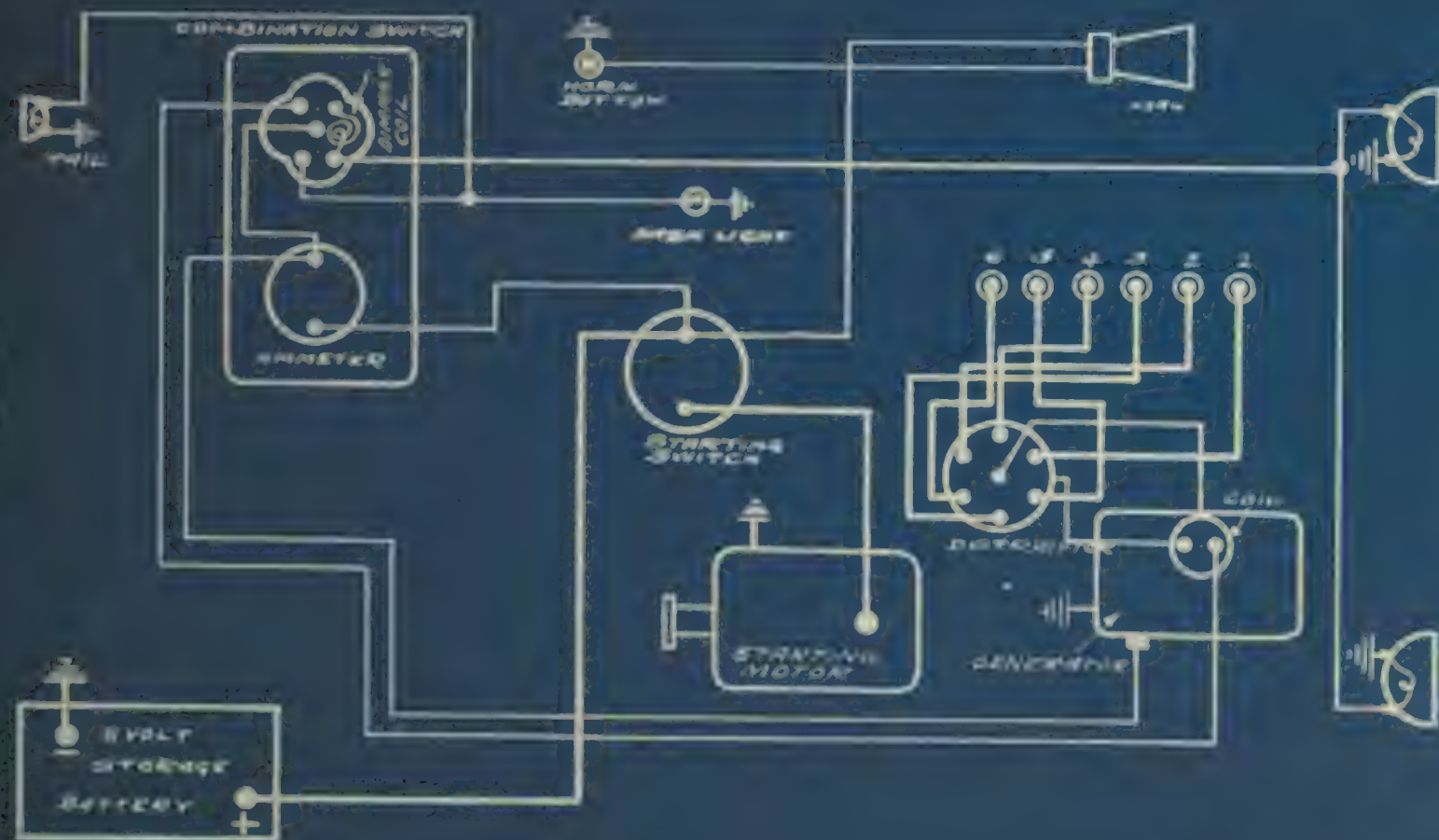
FROM MFR'S, D. R.





OAKLAND 1918-19-20 34-B  
REMY-SYSTEM

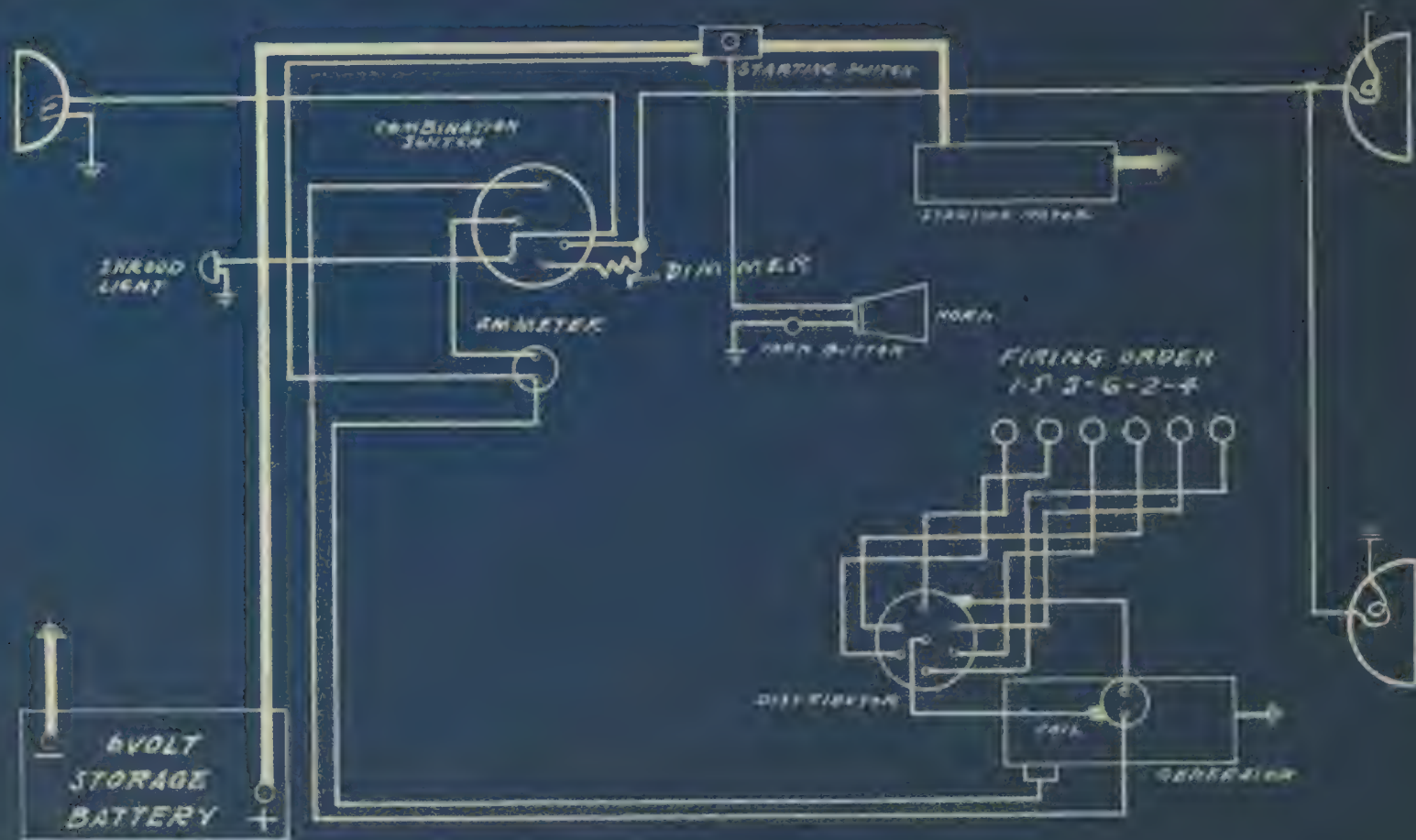
FROM HRS. B/P 20315



# OAKLAND "34-C" 1920

REMY STG. LTG. & IGN.

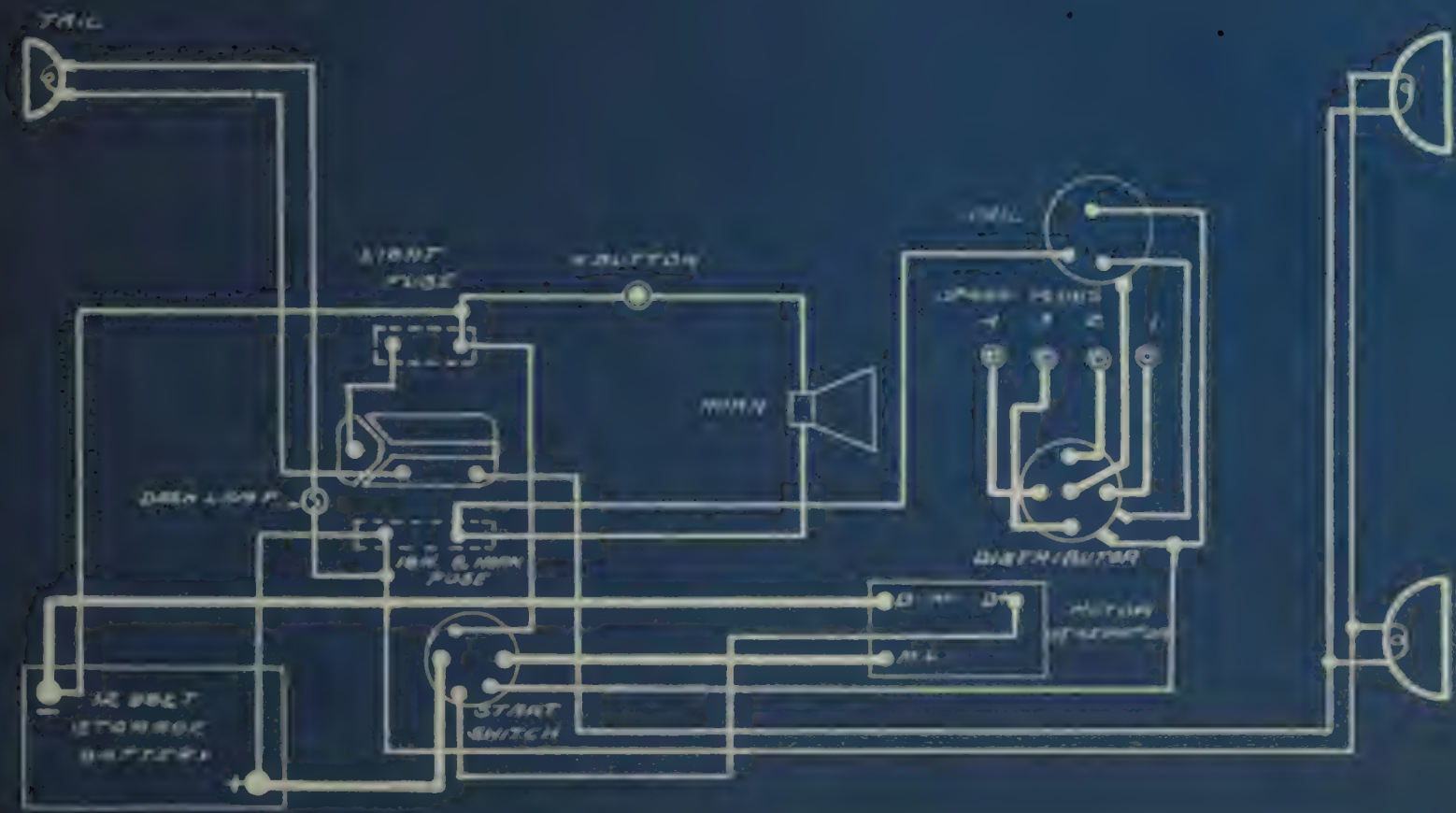
FROM MFRS. DP 20867



# OLD HICKORY TRUCK 1916-1917-1918

DYNASTO SYSTEM

Wiring Diagram

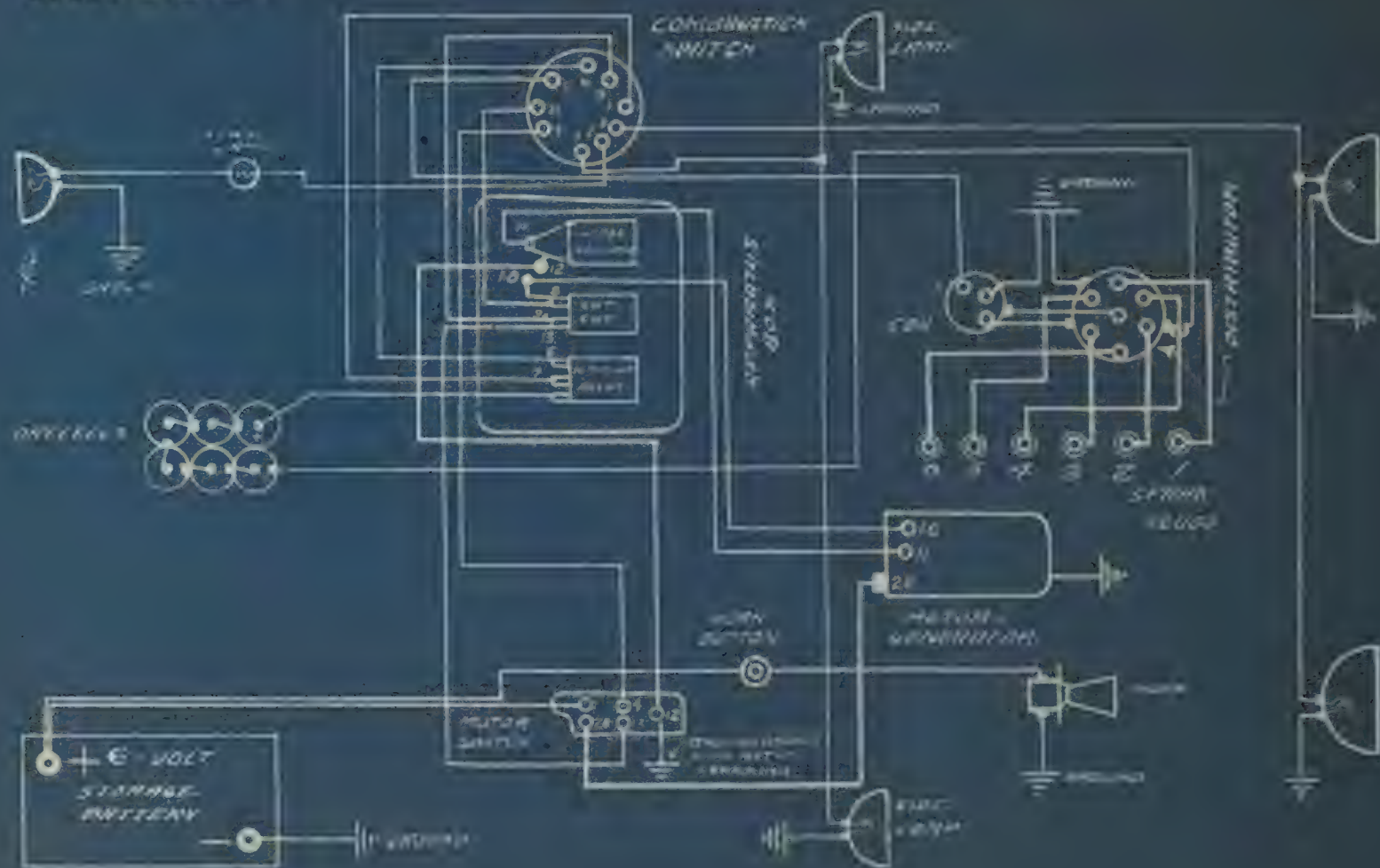




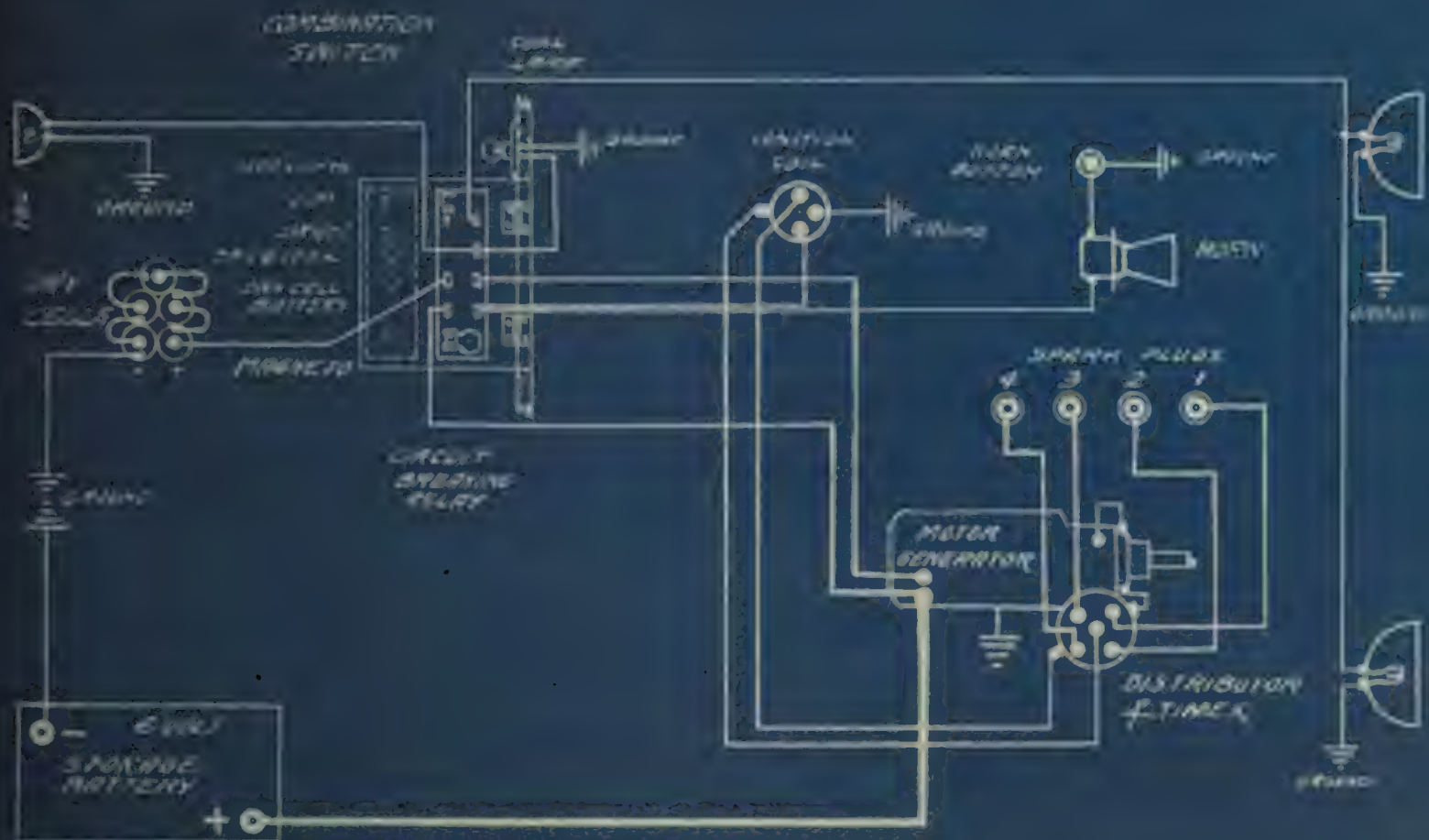
# OLDSMOBILE DELCO SYSTEM

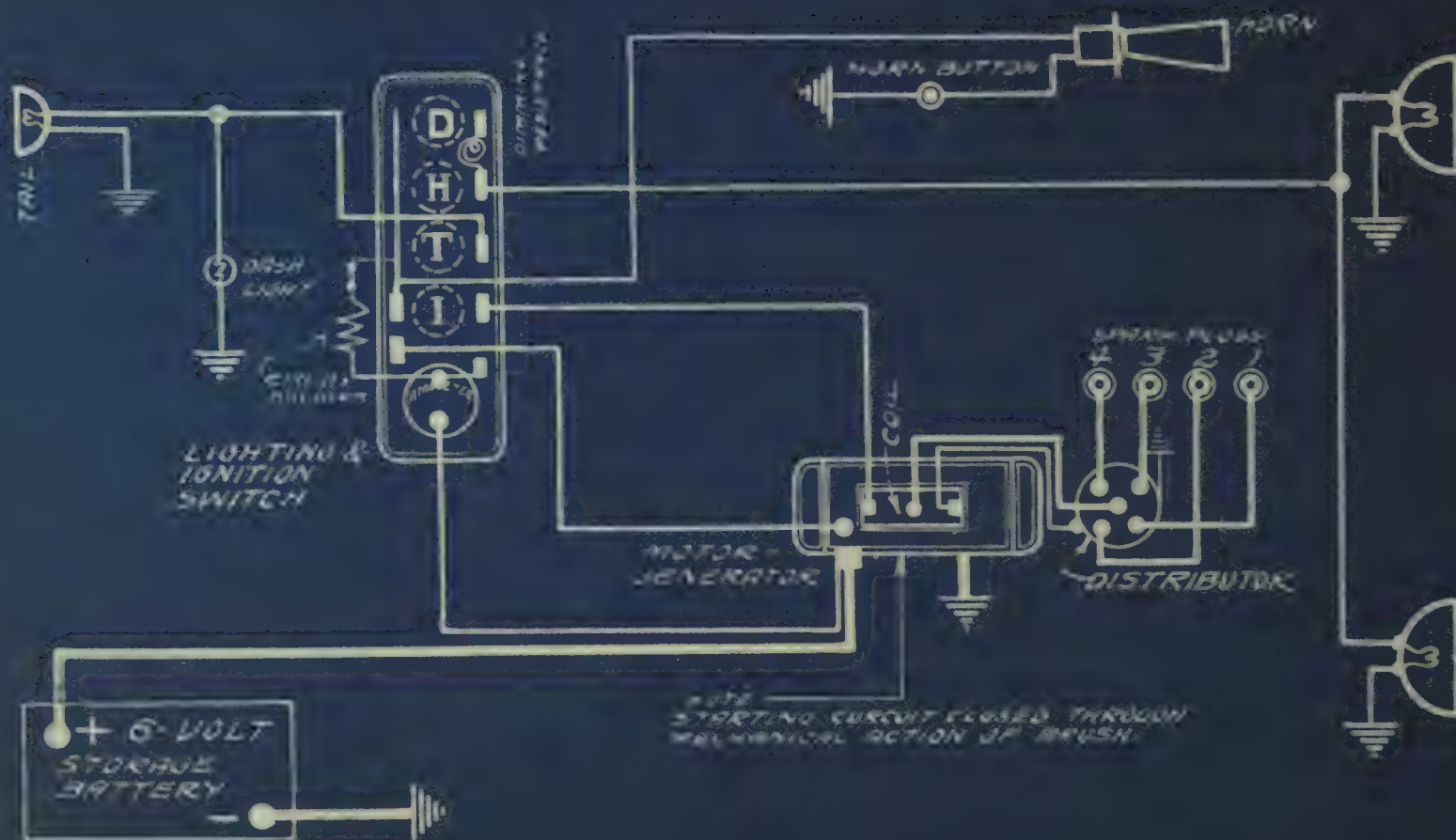
1914 54

TRUCK 3123-157 8004

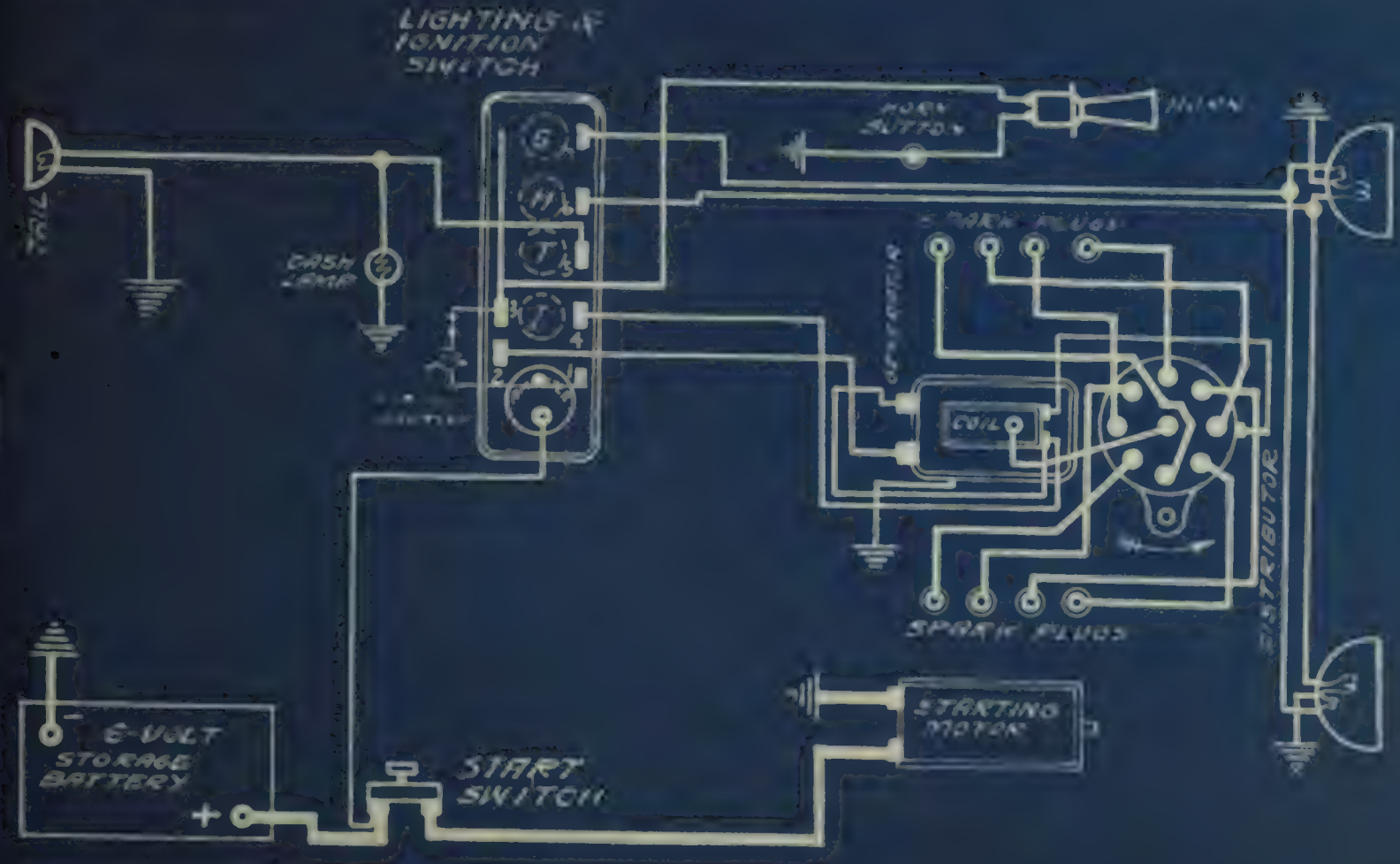


APPH 0425 / APP 8004





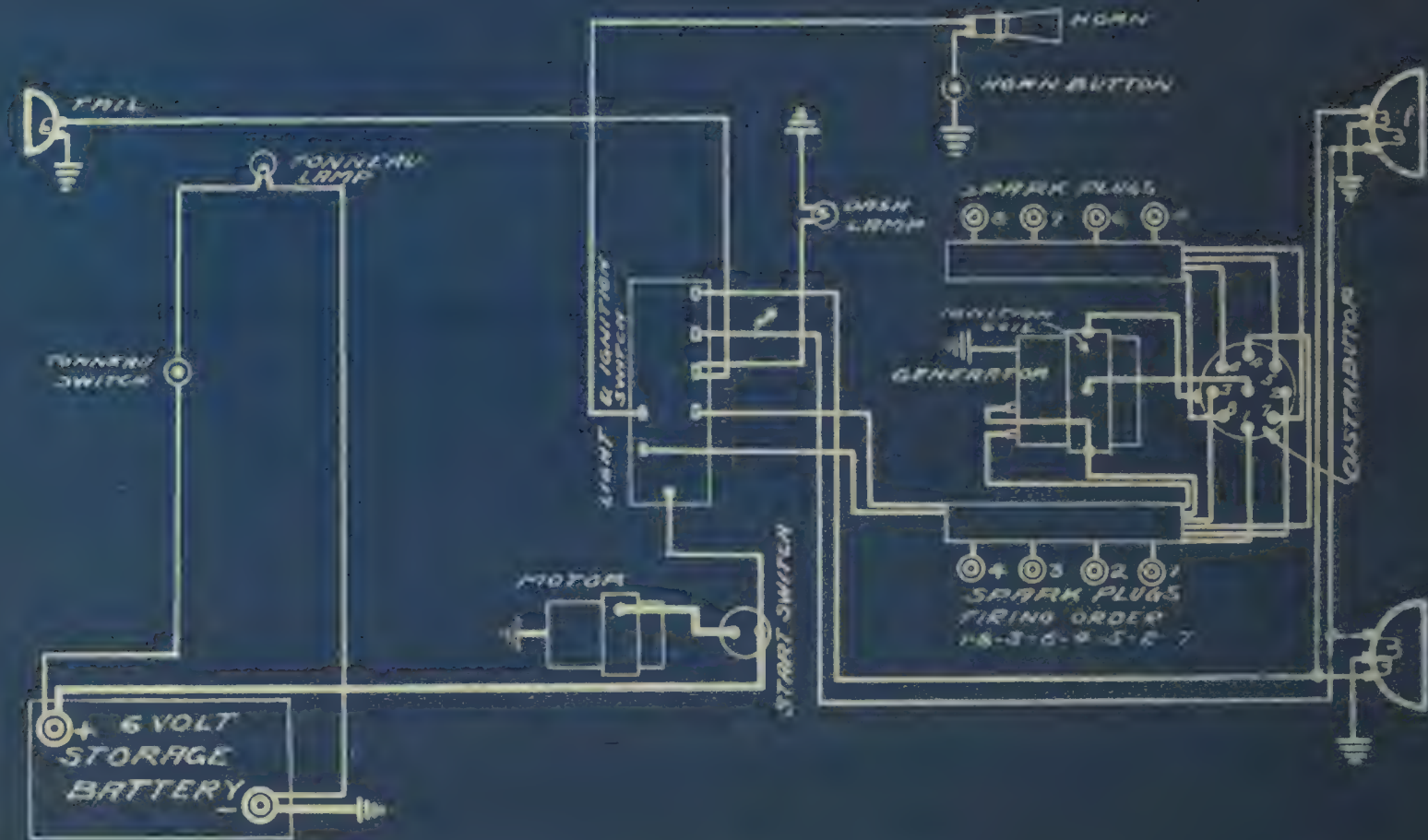




**OLDSMOBILE 1916-1917**  
**DELCO SYSTEM**

45

FROM MFRS. B. P.

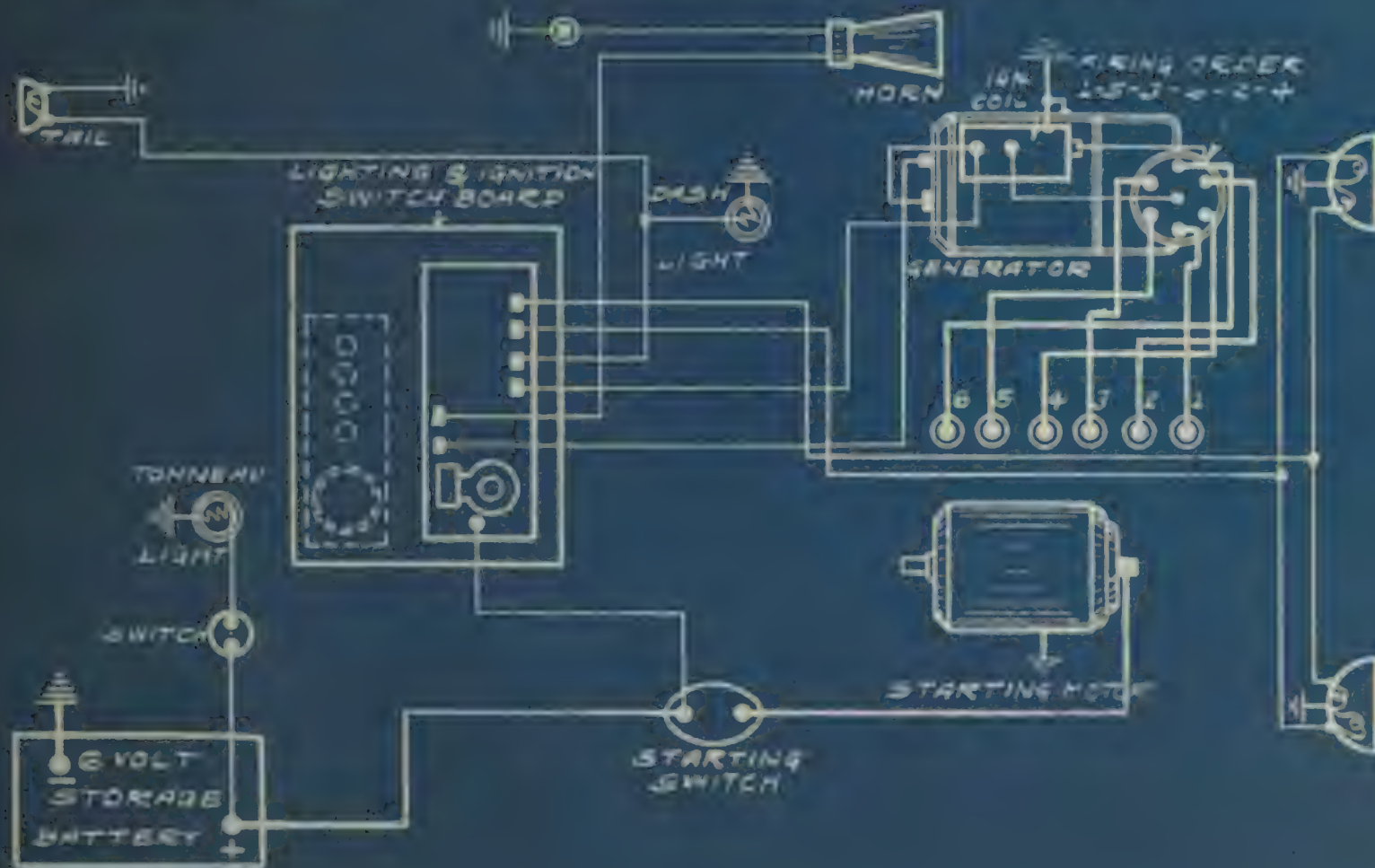


# OLDSMOBILE 1917

DELCO SYSTEM

37

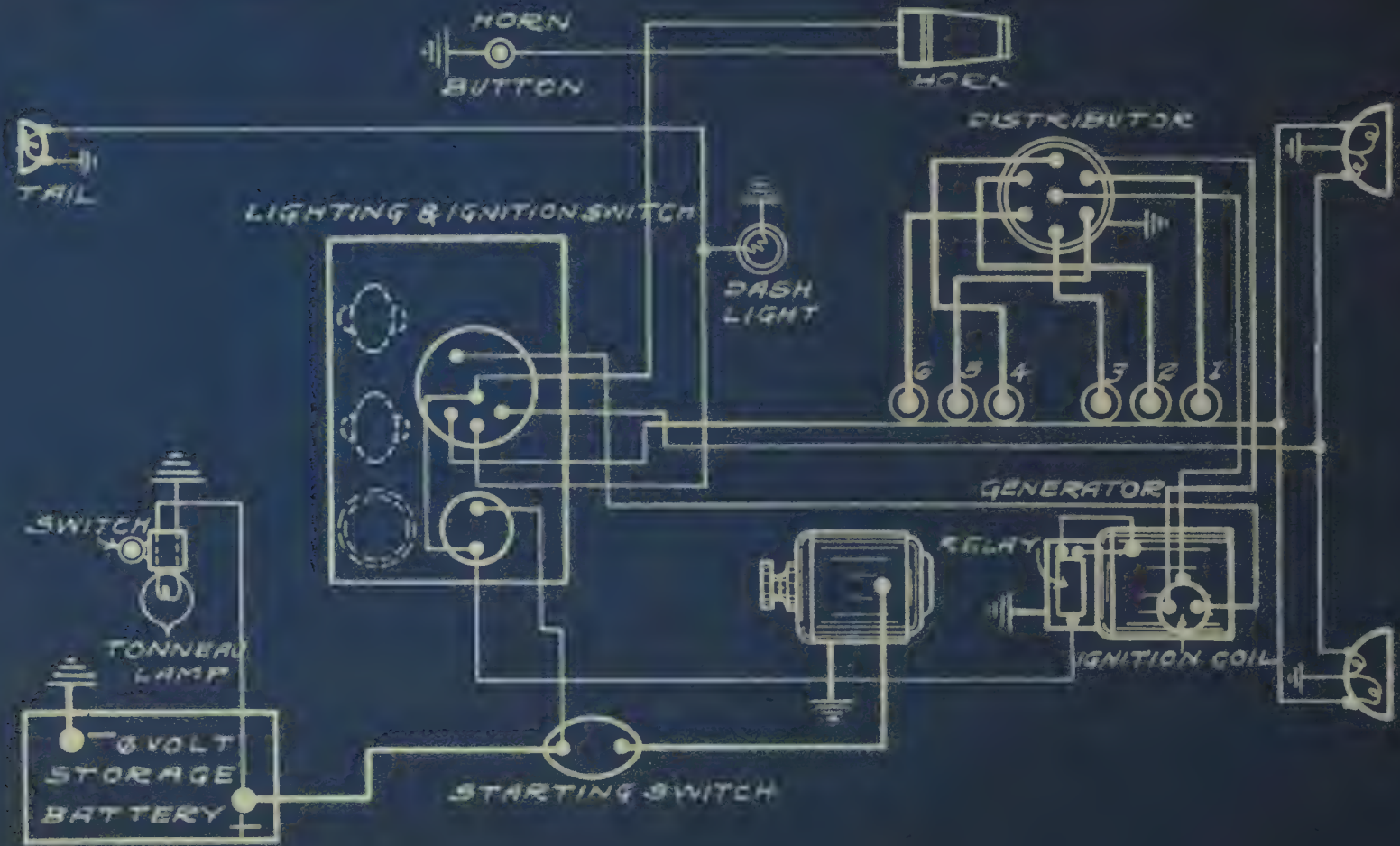
FROM 1916 INST BOOK





OLDSMOBILE 1918, 1919, 1920.  
REMY SYSTEM

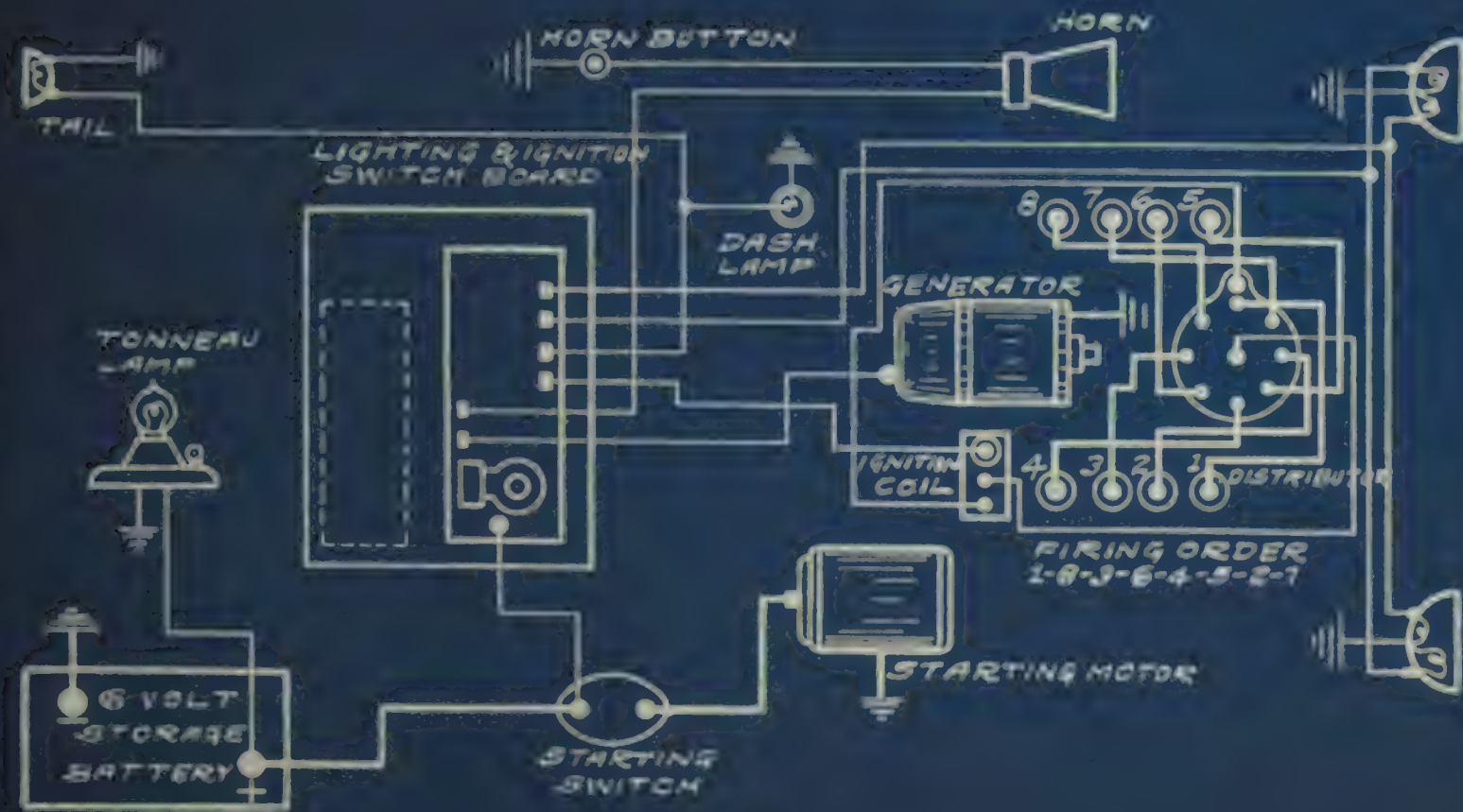
0. MODELS 37, 37-A  
FROM MFRS. B/P



# OLDSMOBILE 1918, 1919, 1920. MODEL 45-A & B.

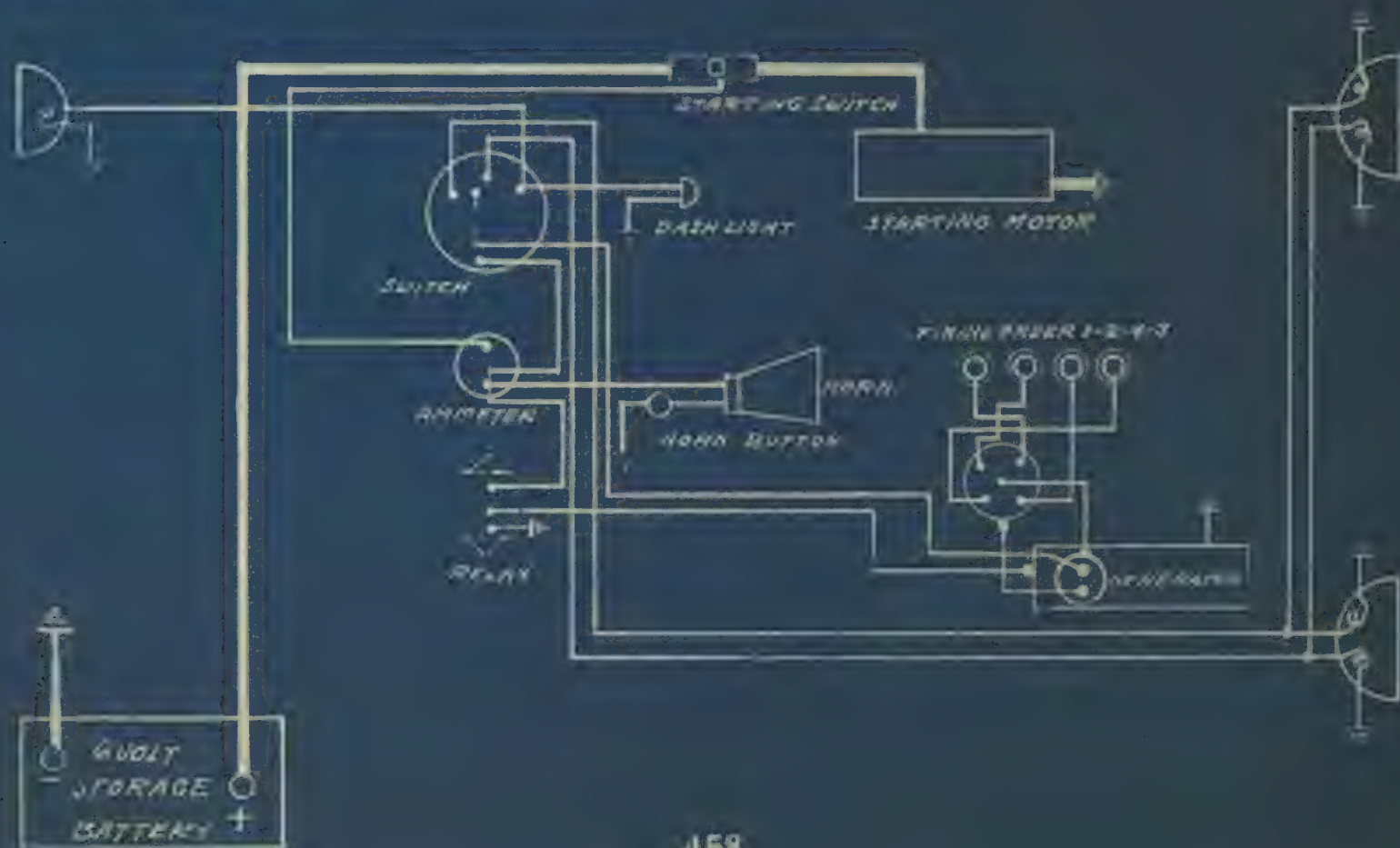
DELCO SYSTEM

FROM MFRS. B/P



# OLDSMOBILE TRUCK MODEL "T" REMY SYSTEM

FROM MP42, INIT. 3600



OLDSMOBILE TRUCK MODEL "T"  
REMY SYSTEM



# OLYMPIAN MODEL 35 1917

RETRO-CONTROL SYSTEM

WINDING: 100% 115V 60 HZ



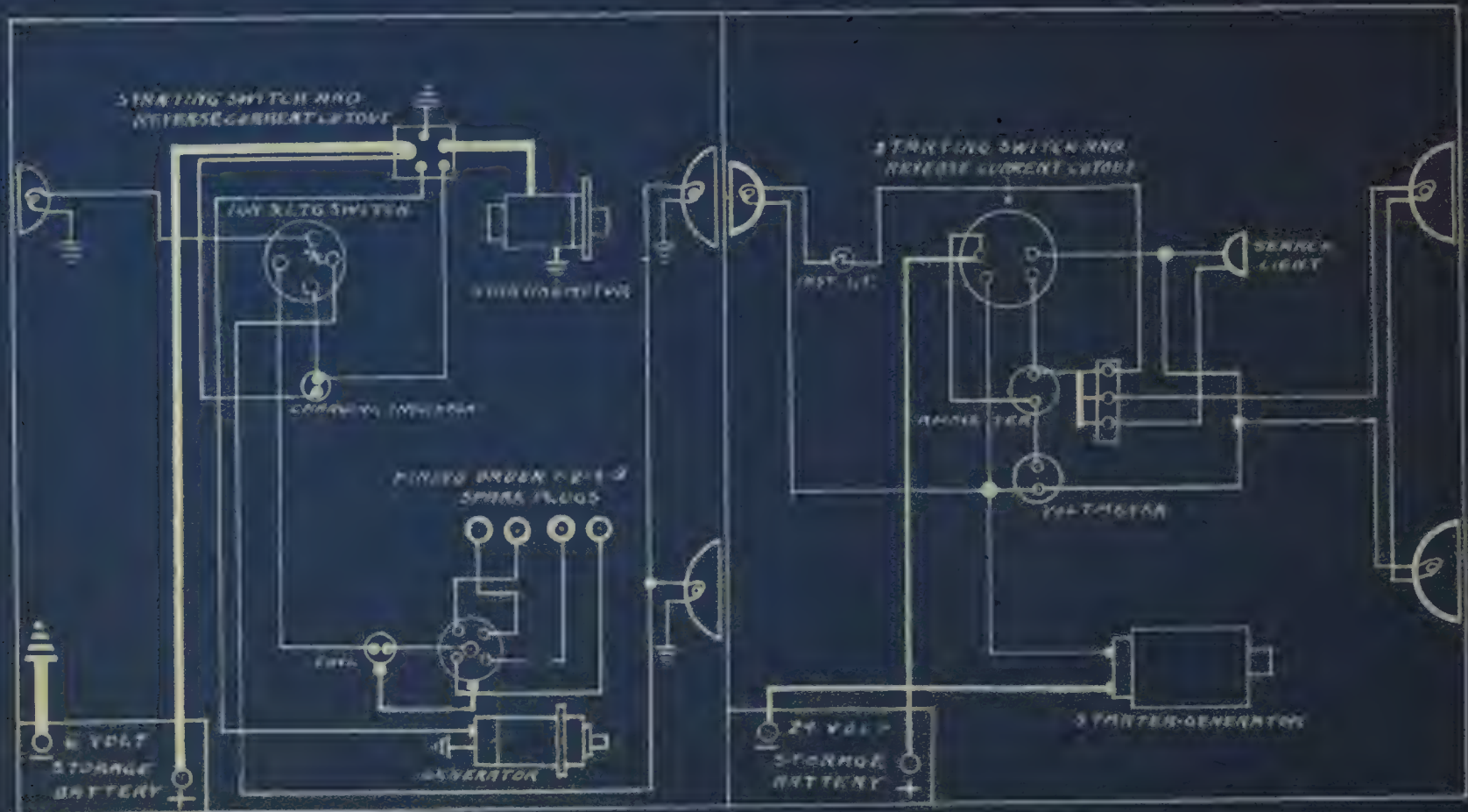
# OSHKOSH 4 WHEEL DRIVE TRUCK

NORTHEAST LTG W/ON FROM REE/JST/DMK

# FWD TRUCK

NORTHEAST SYSTEM

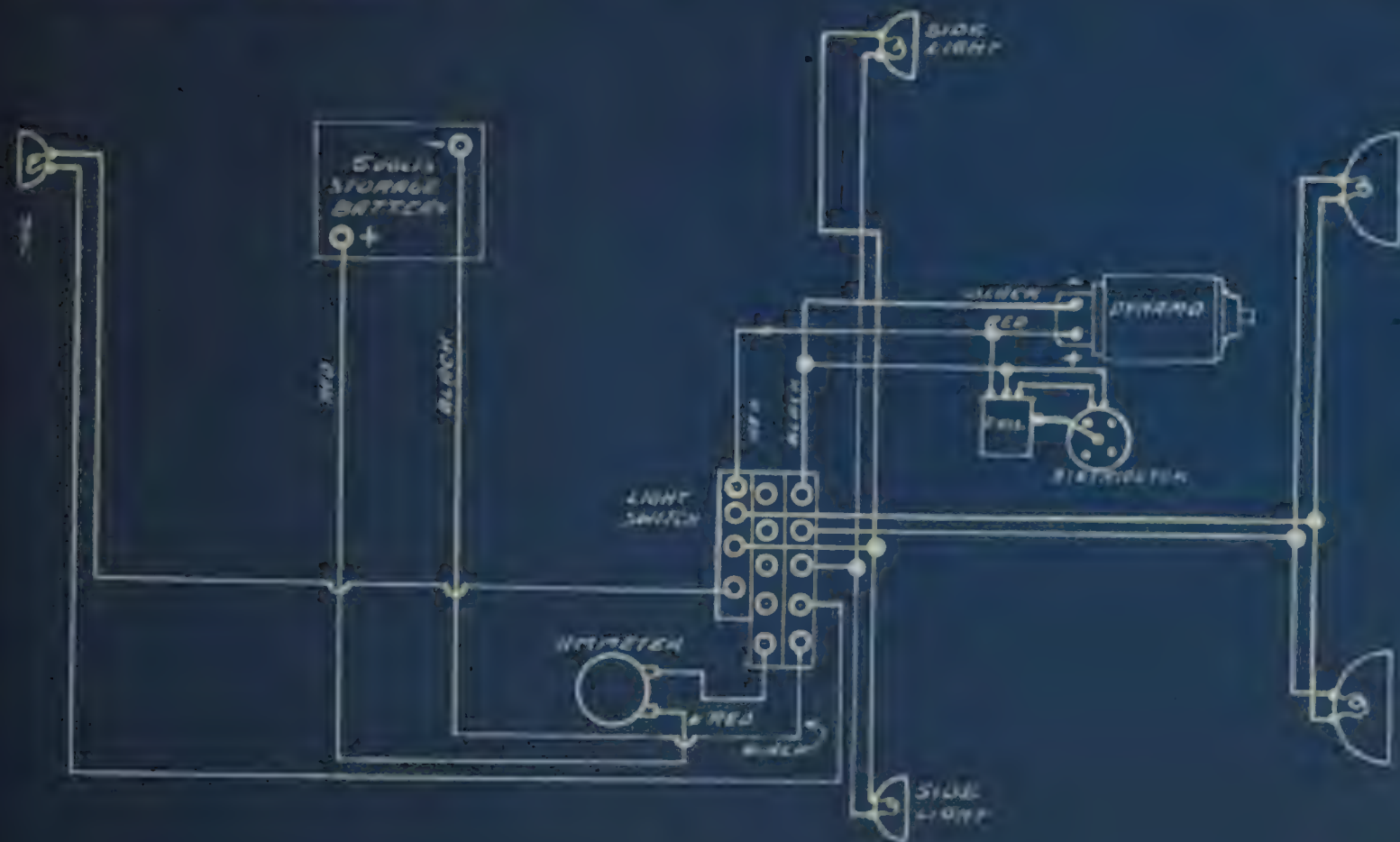
FROM REE/JST/DMK



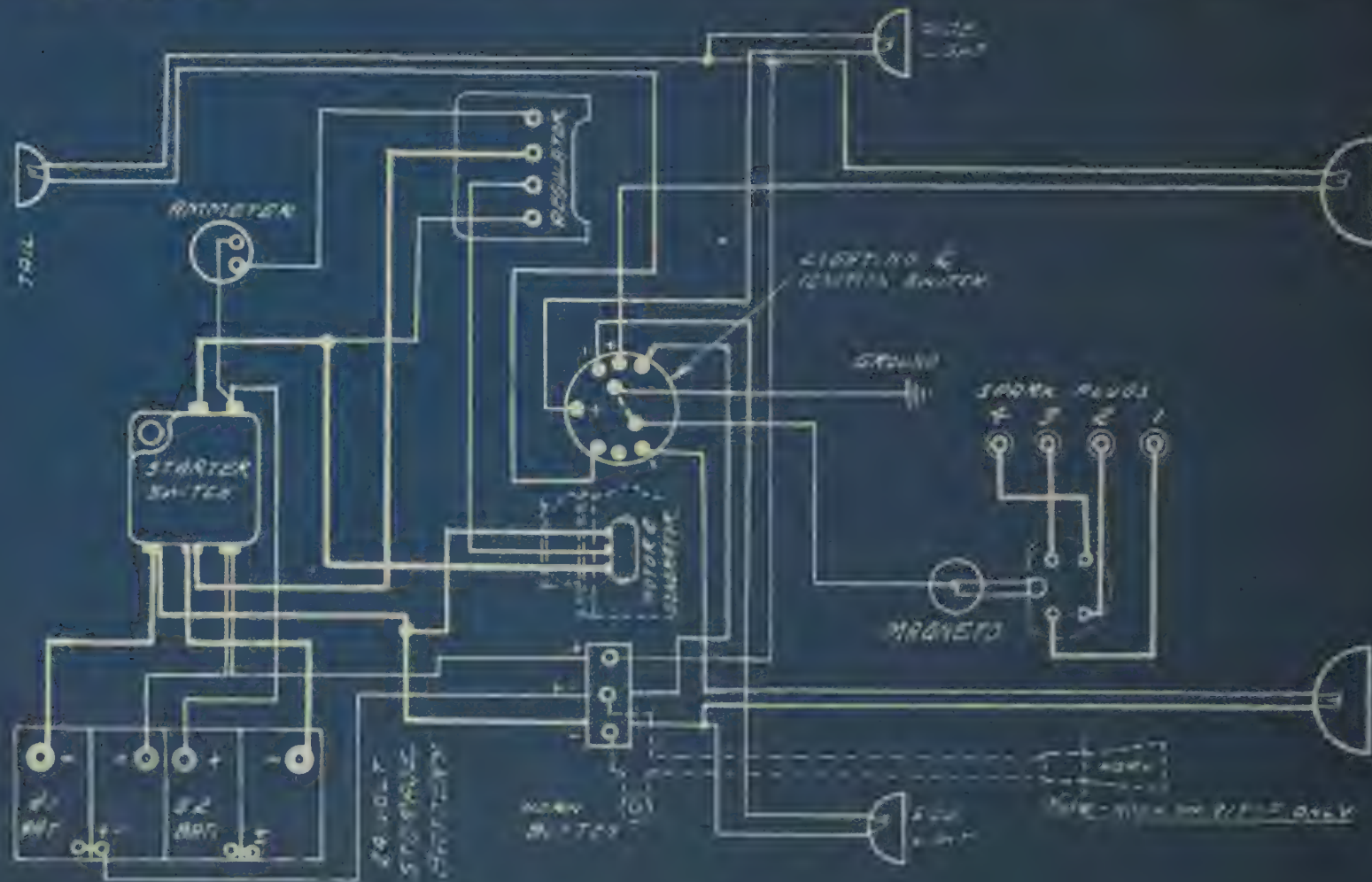
# OVERLAND 1913 AUTOLITE SYSTEM

69 & 71

Rev. 3A 10554



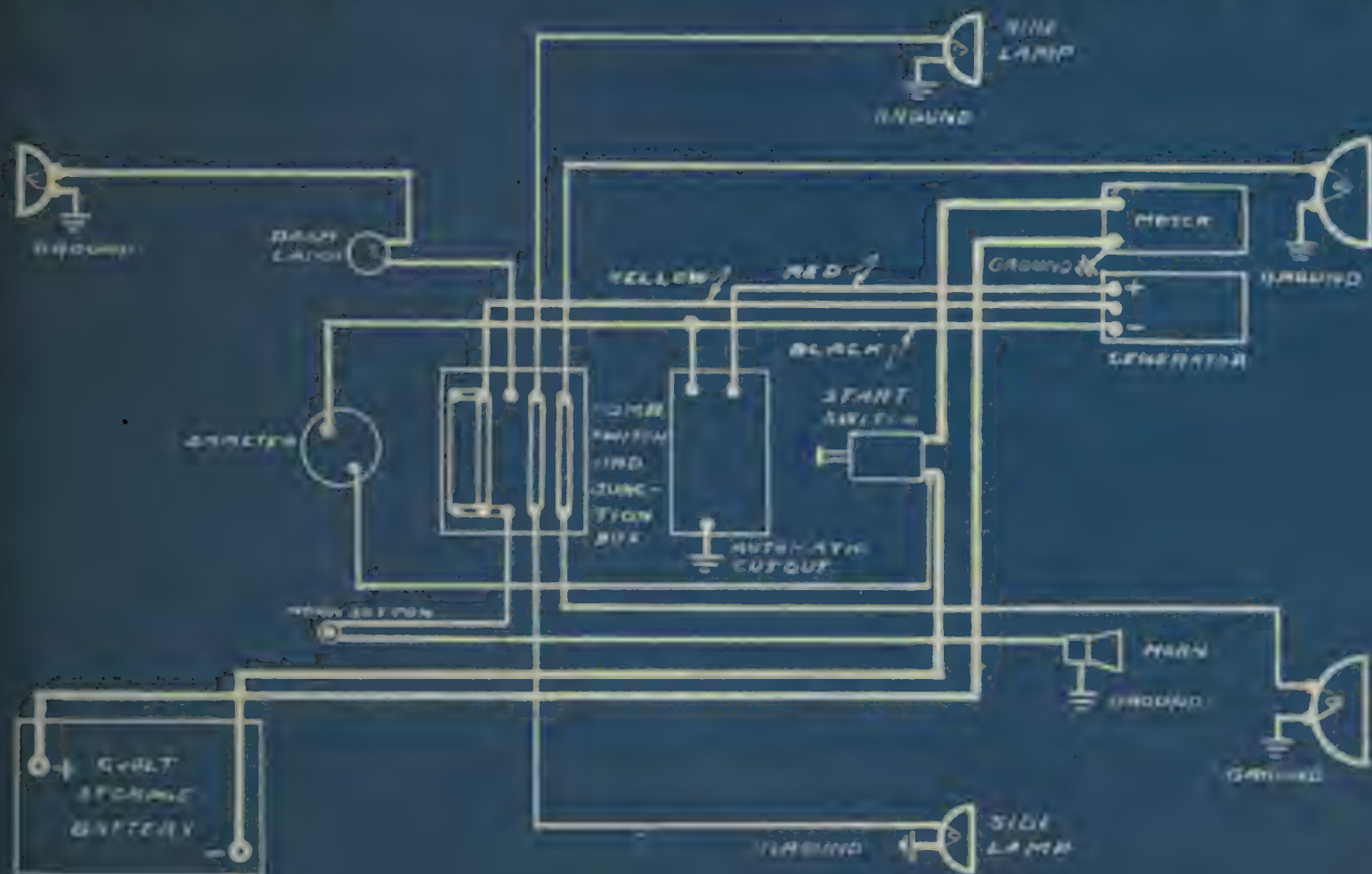




OVERLAND 1914 79-B

DATE: 10/10/2010

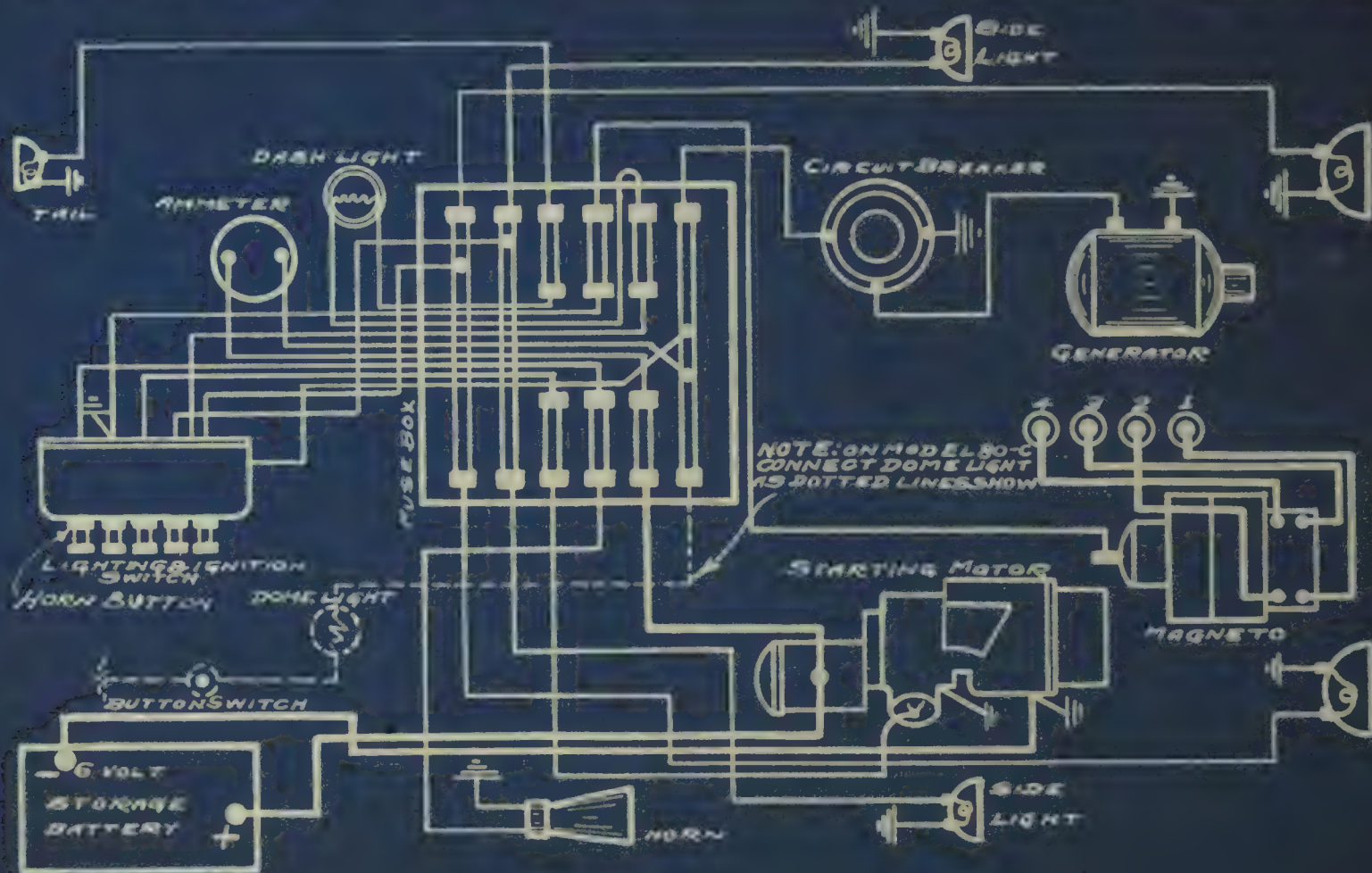
FROM HEPN 24.11.2018



# OVERLAND 1915 80-C & 80-T&R

AUTOLITE SYSTEM

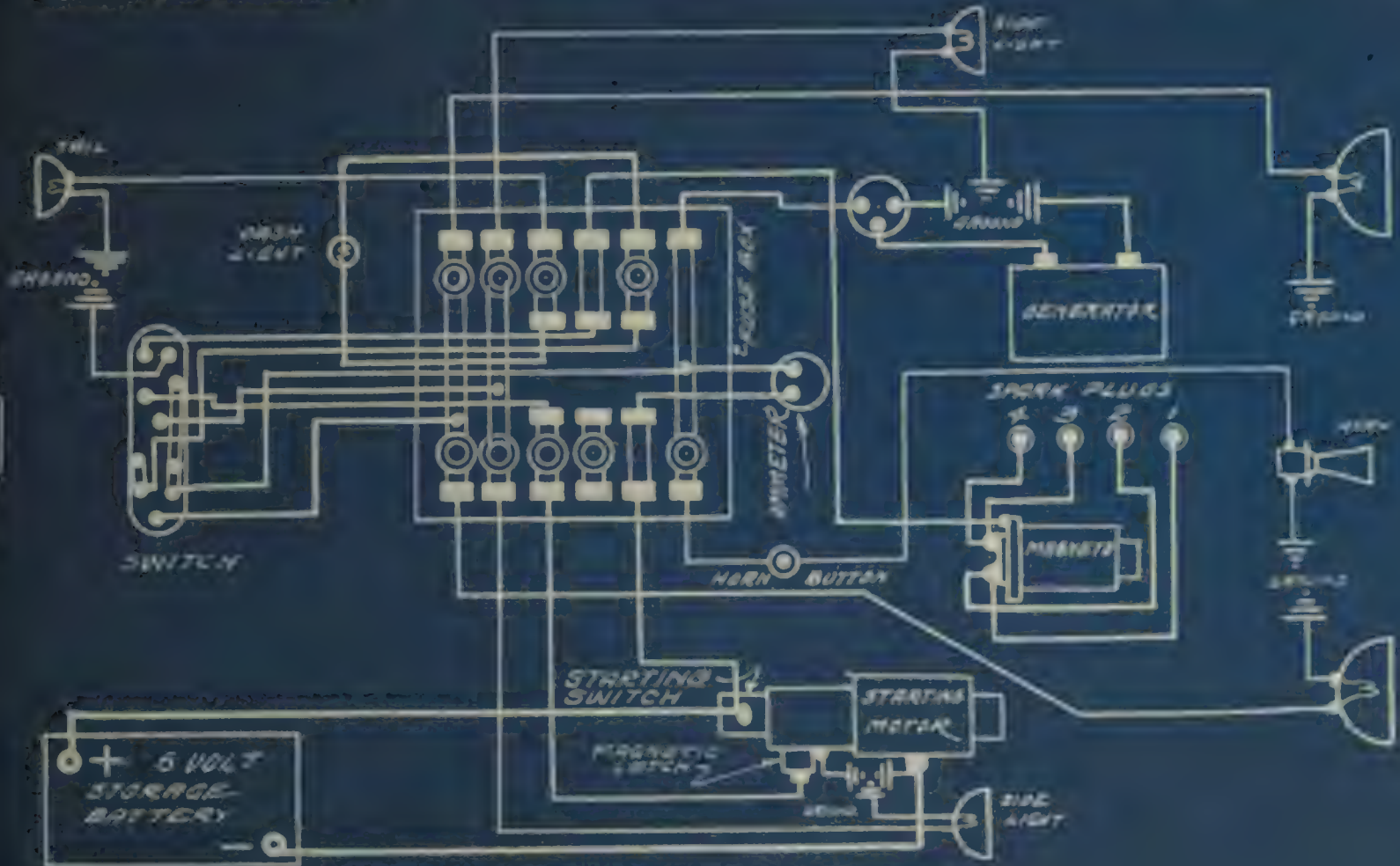
FROM MFRS. B/P 11700 & 12518





OVERLAND 1915 81-LD&T-R  
AUTOLITE SYSTEM

FROM MFRS. B.P. 128548-13606

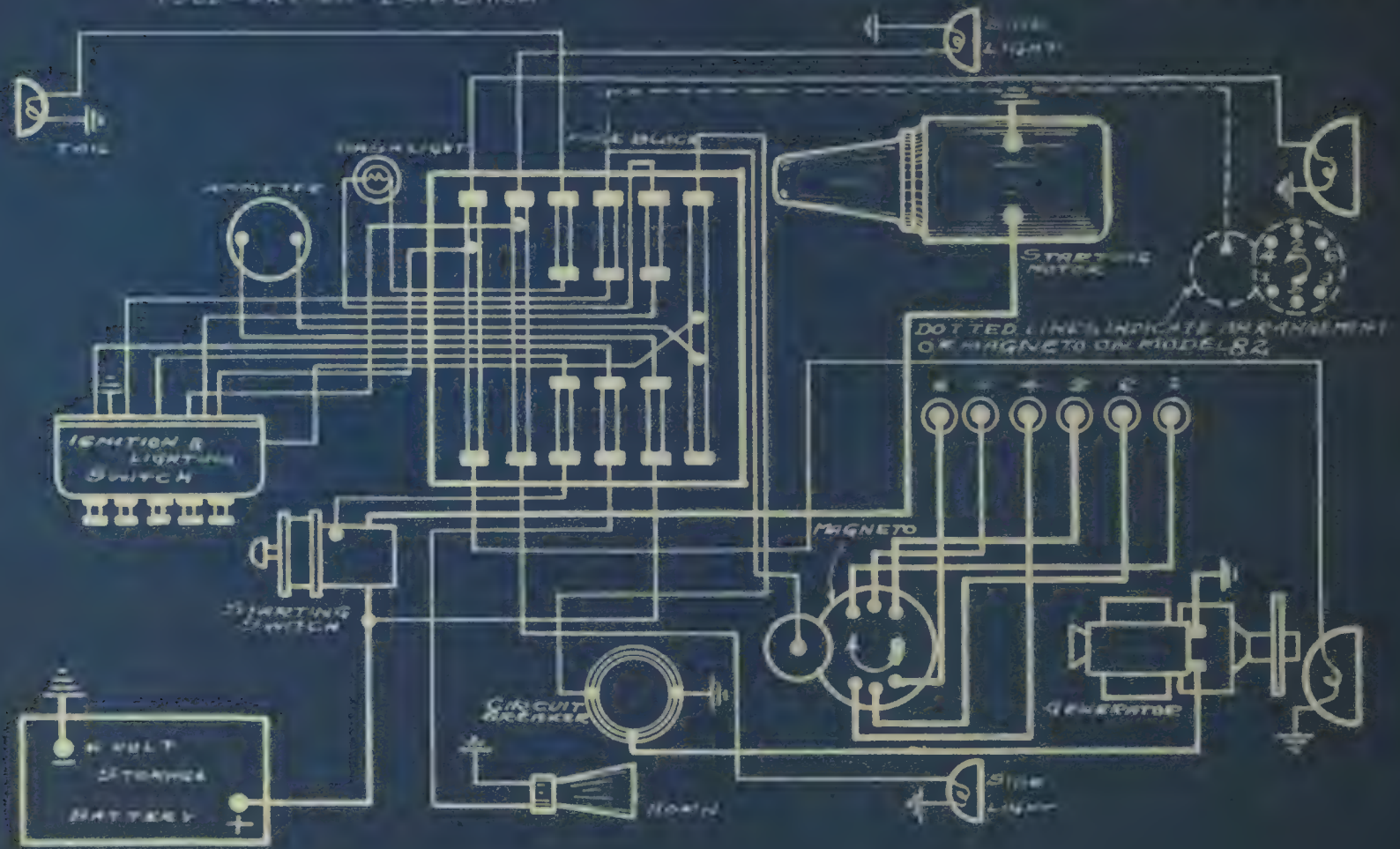


# OVERLAND 1915 "82" & 1916 "86"

AUTOLITE SYSTEM

FROM MFRS B/P 15804 & 13740

(SEE FOR FURTHER CHANGES)



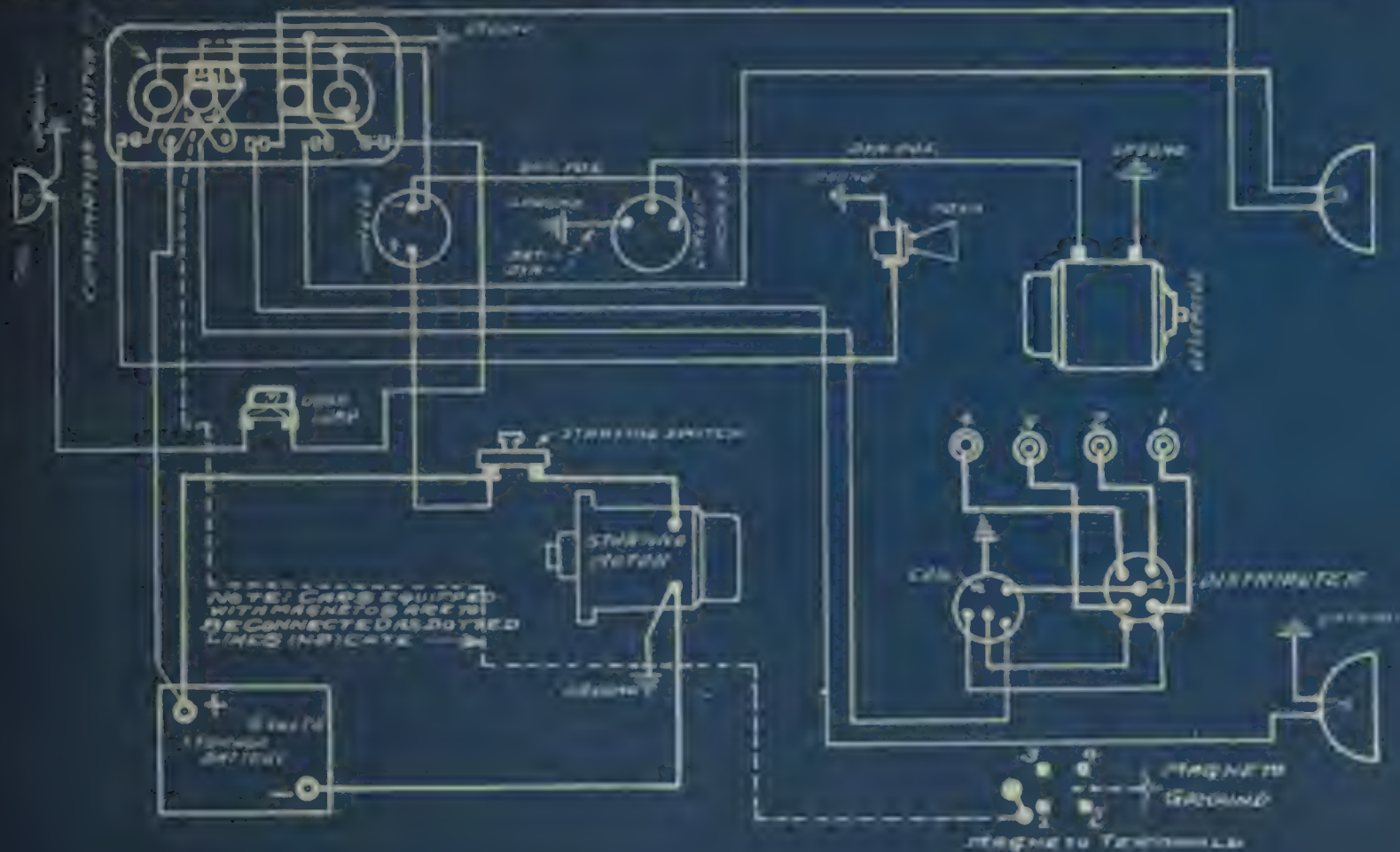
AUTOLITE SYSTEMS CO.

# OVERLAND 1916 75T & 75 LD

AUTOLITE SYSTEM

CARS 33850 TO 56000-

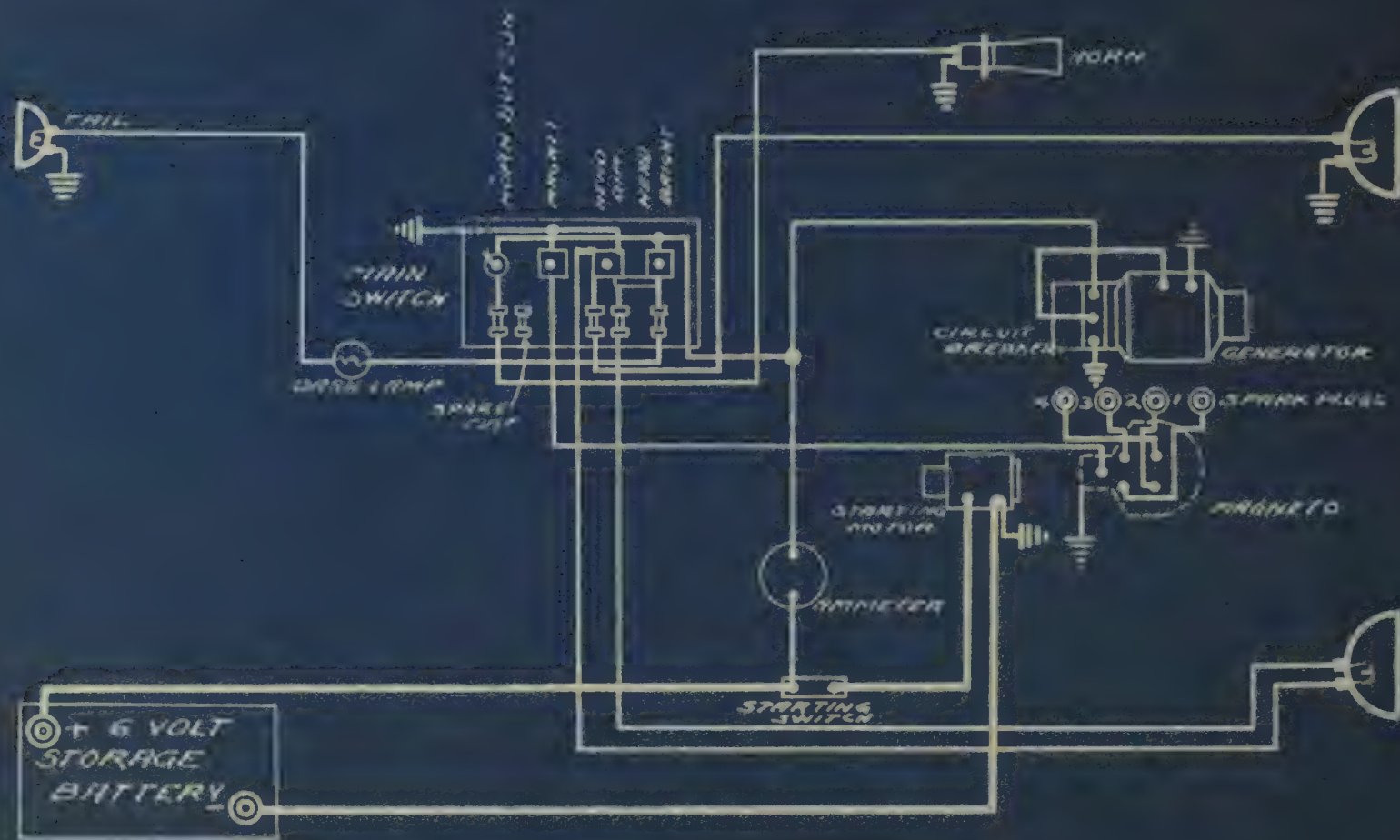
FROM MFRS. 9-P-5  
17590-15491 & 18926





# OVERLAND 1916 MODEL 83B-DE AUTOLITE SYSTEM

FROM MFRS. B. F. 13466



AUTOMOTIVE EQUIPMENT CO.  
CHICAGO, ILL.

# OVERLAND 1916

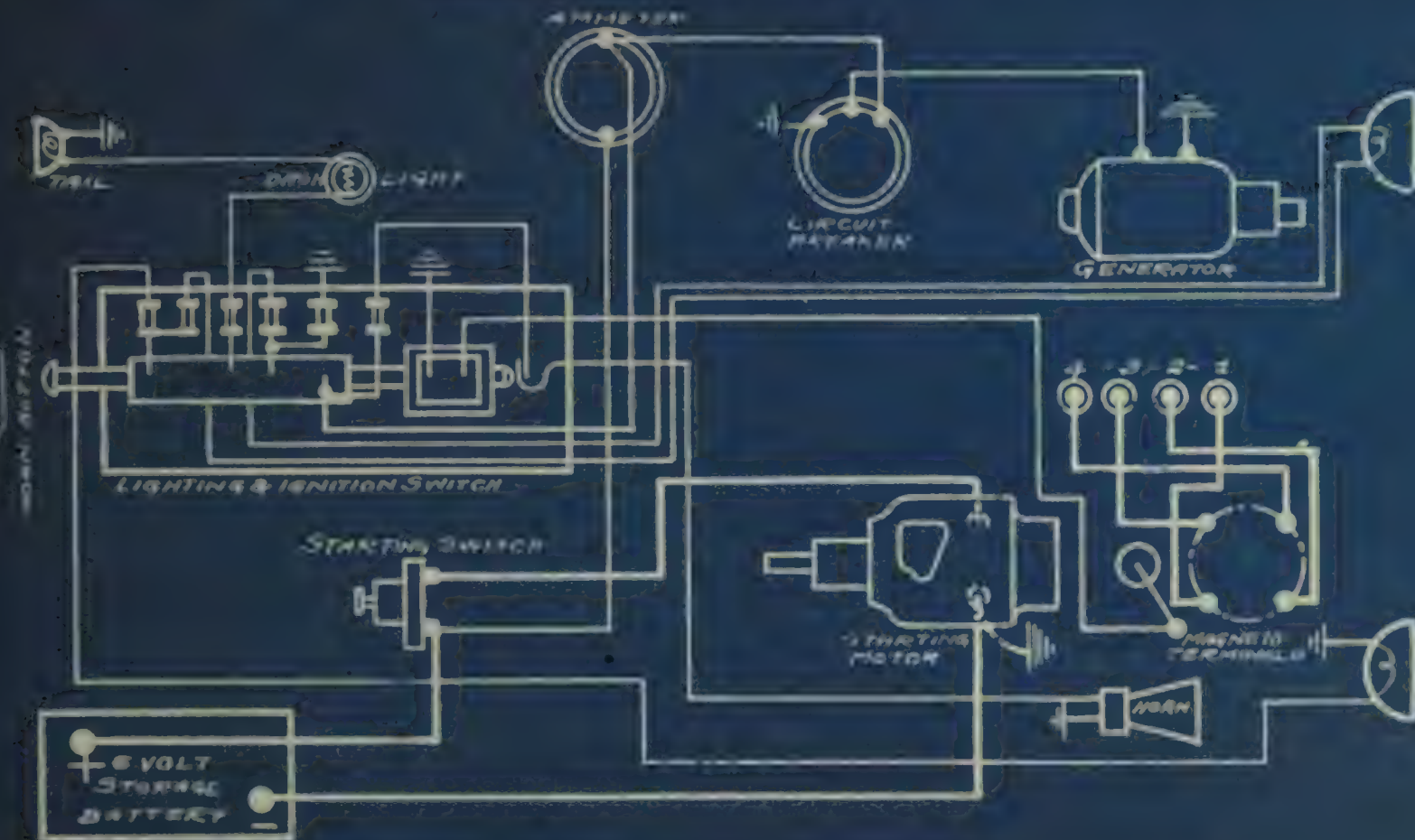
## AUTOLITE SYSTEM

# 83-LD-EX-T-R

FROM MFRS. B. P. - 15277-14500 & 14530

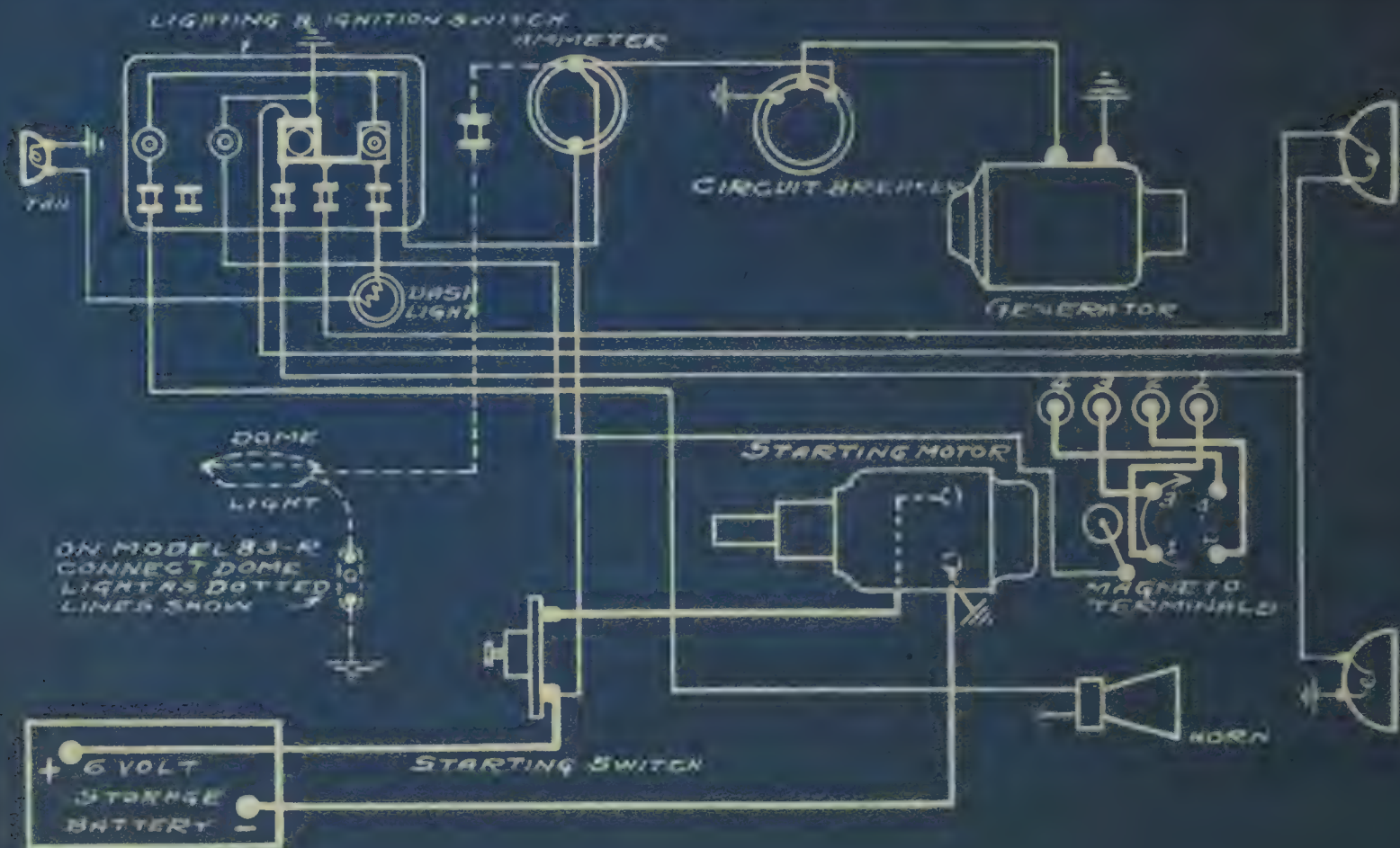
USED ON EARLY CARS

AUTOMOTIVE EQUIPMENT CO.



# OVERLAND 1916 AUTOLITE SYSTEM

83-T-EX-LD-B-D-E&R.  
FROM MFRS. B-F-5 16006-16004-16003-15981 & 19466  
USED ONLY ON MODELS





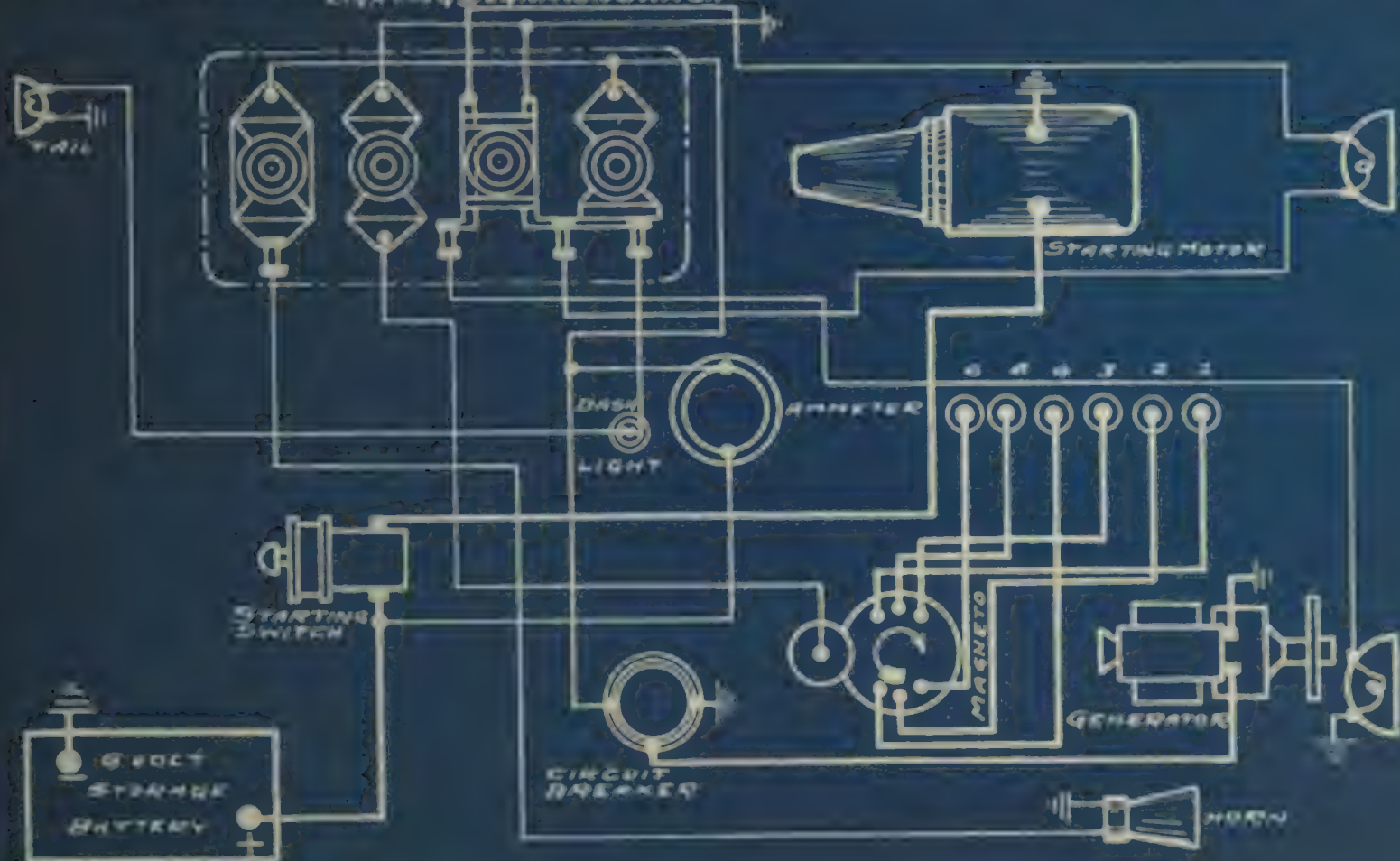
# OVERLAND 1916 86

## AUTOLITE SYSTEM

FEEDWATER FIRST 2150 CARB

LIGHTING & IGNITION SWITCH

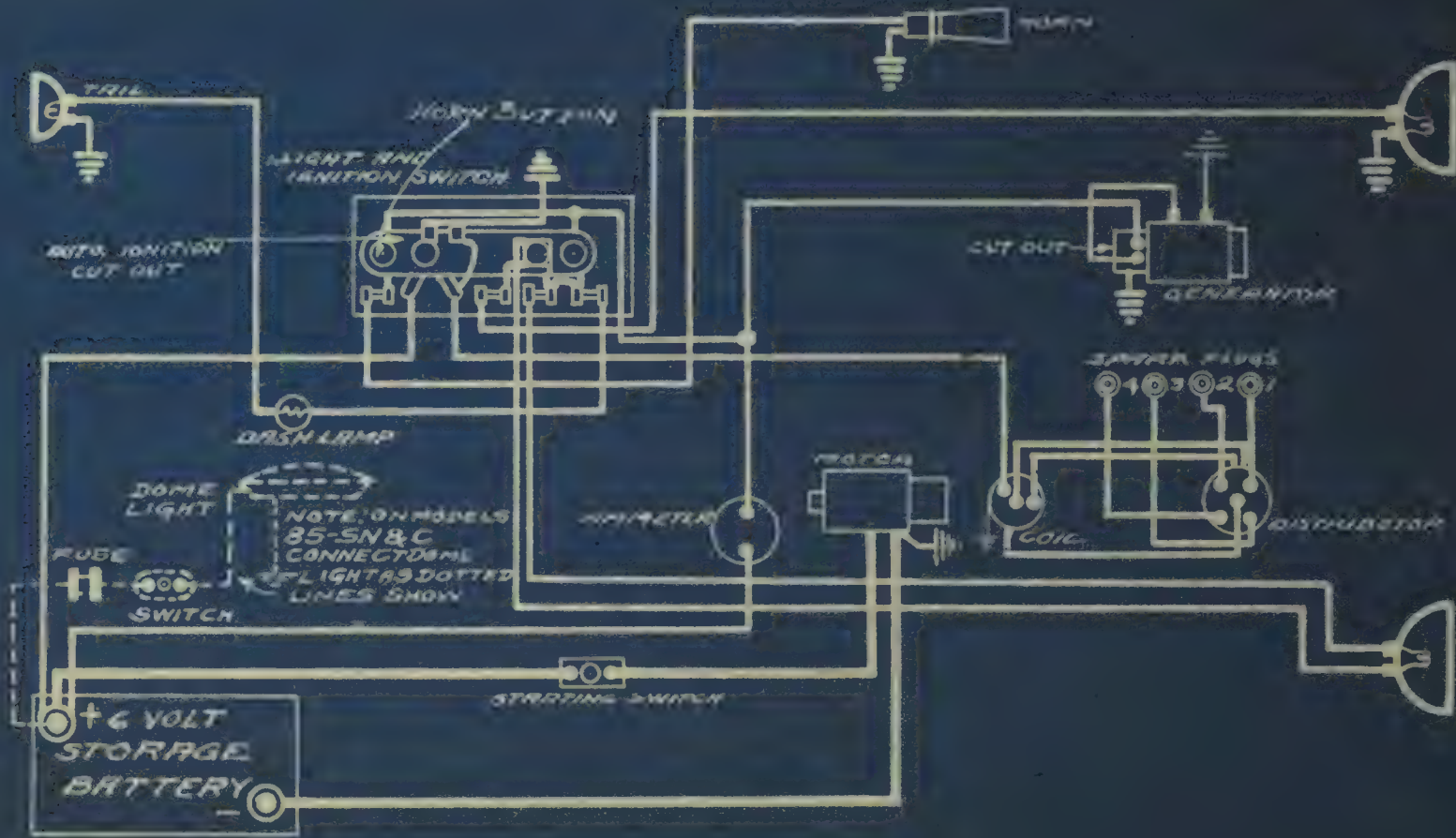
FROM MFR 5.8/P 15843



# OVERLAND 1917 MODEL 85-4--T-R-C&5N

AUTOLITE SYSTEM

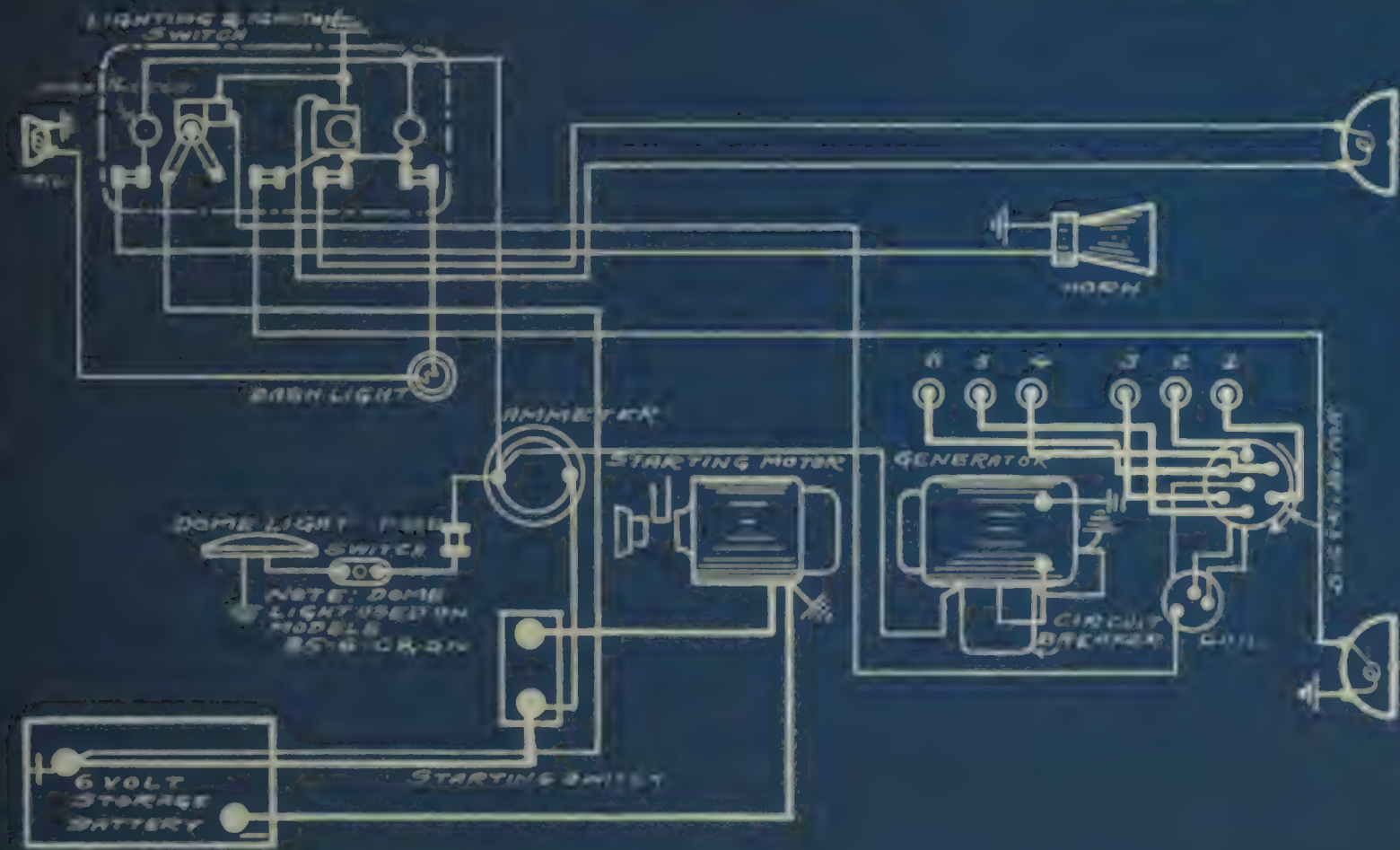
FROM MFRS. B. P. 101 787-100654-57700-18741-18740



# OVERLAND 1917 AUTOLITE SYSTEM

85-6-C-5N-T-R

FROM MFRS B-P 19515-19797-101788-177178  
100938

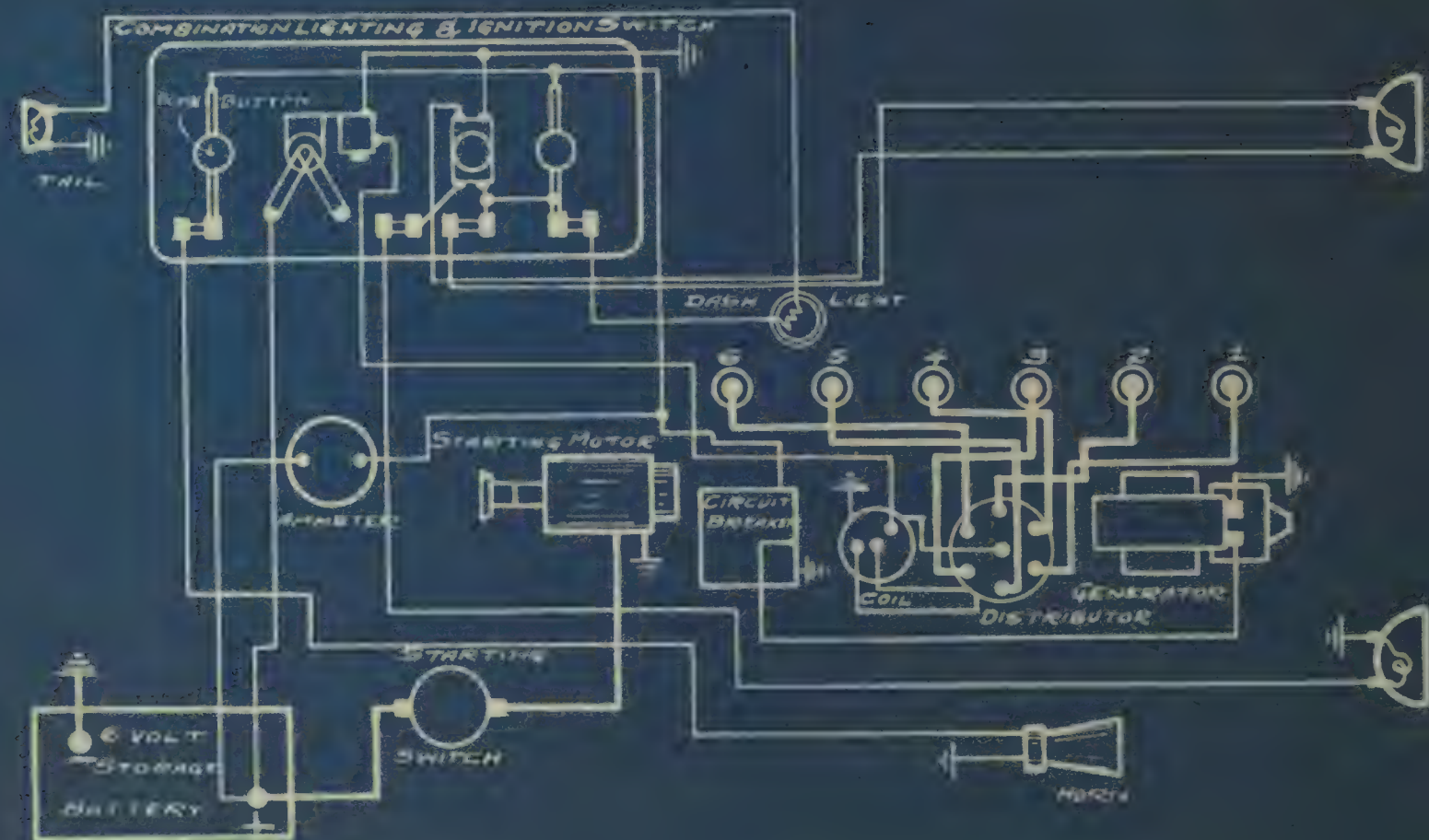




# OVERLAND 1917 86-B

## AUTO-LITE SYSTEM

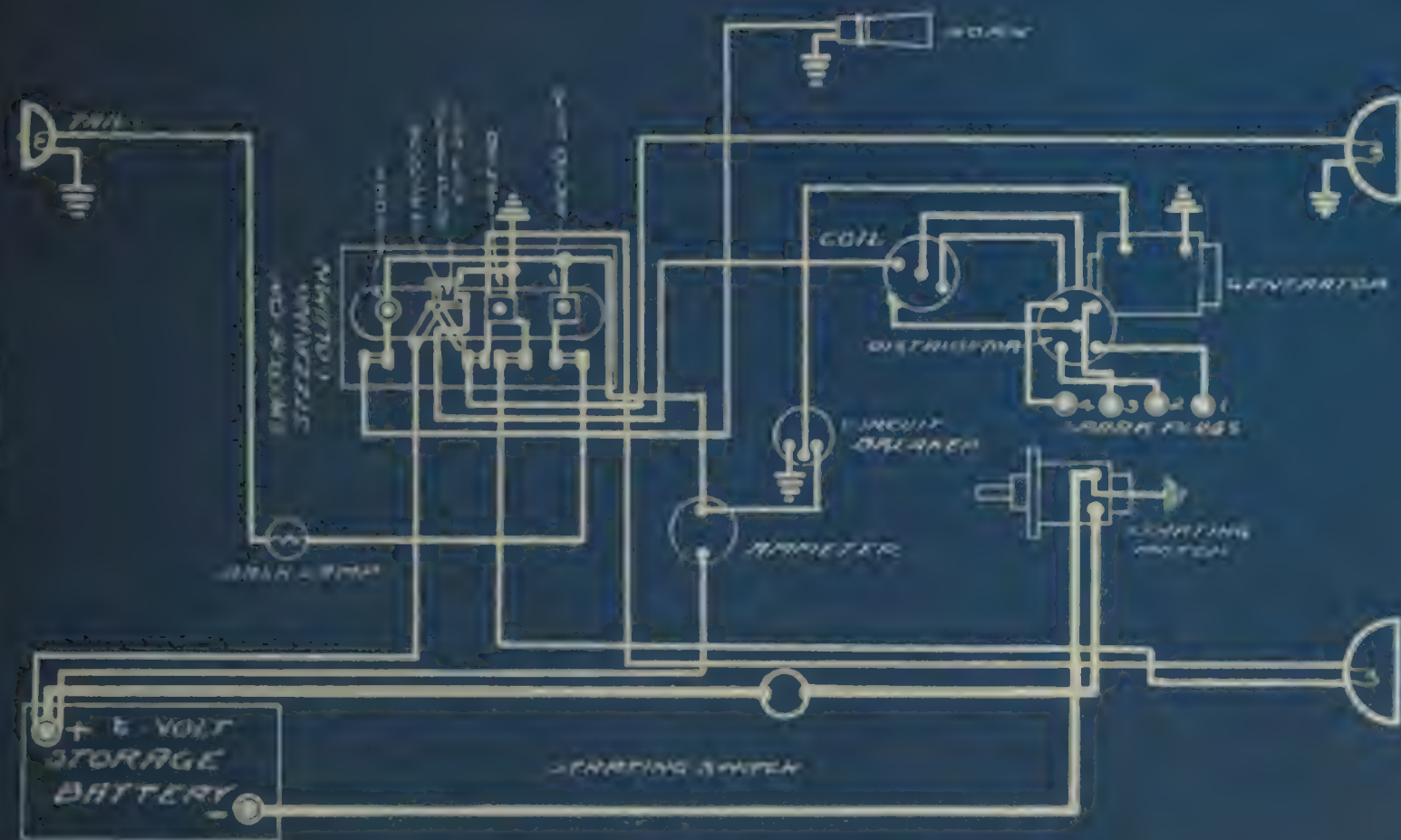
FROM MFRS B/P 19127



# OVERLAND 1917 MODEL 30-T & 30-CL-R

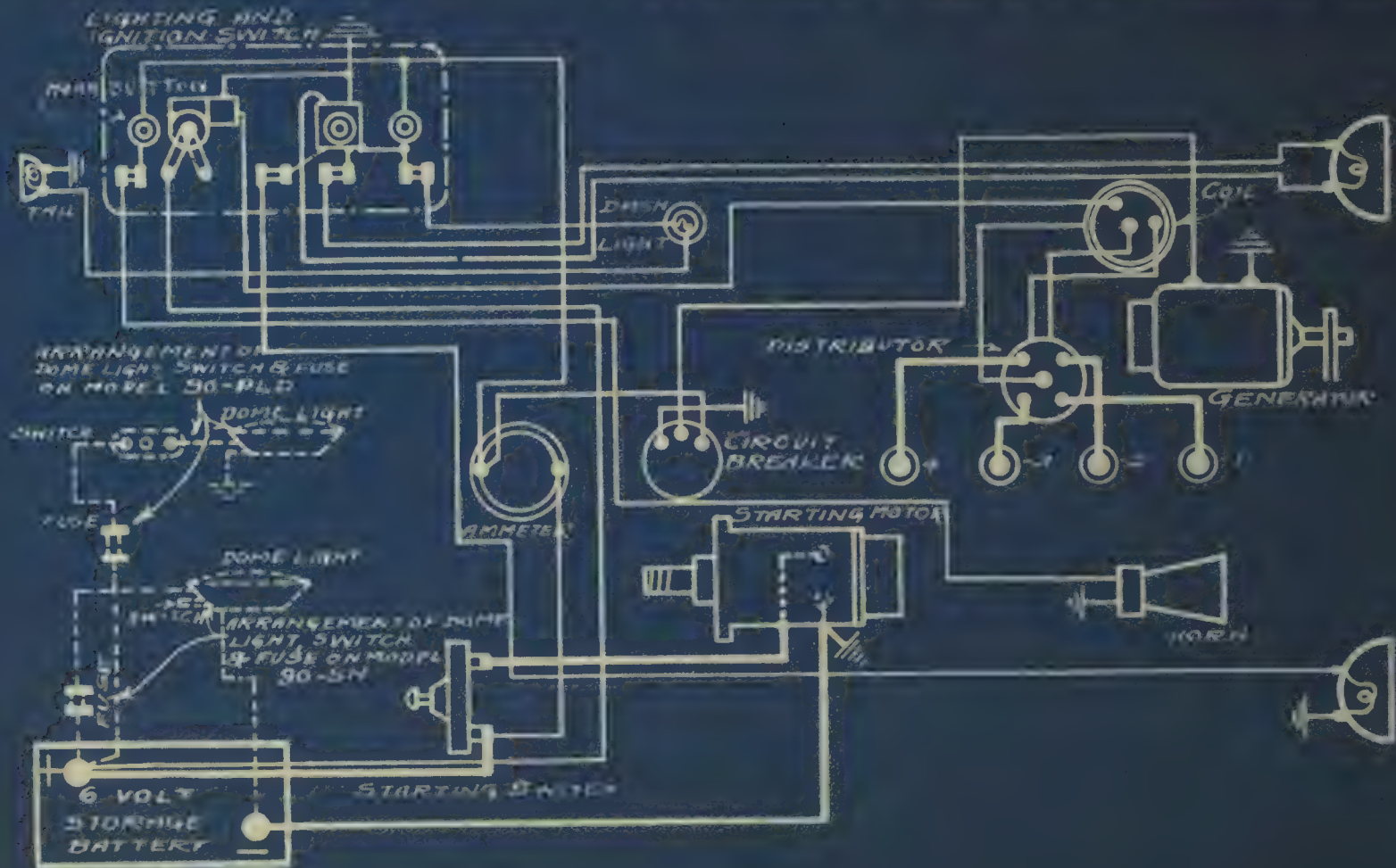
## AUTOLITE SYSTEM

FRONT VIEW SET 100-486  
100969



# OVERLAND 1918 AUTOLITE SYSTEM

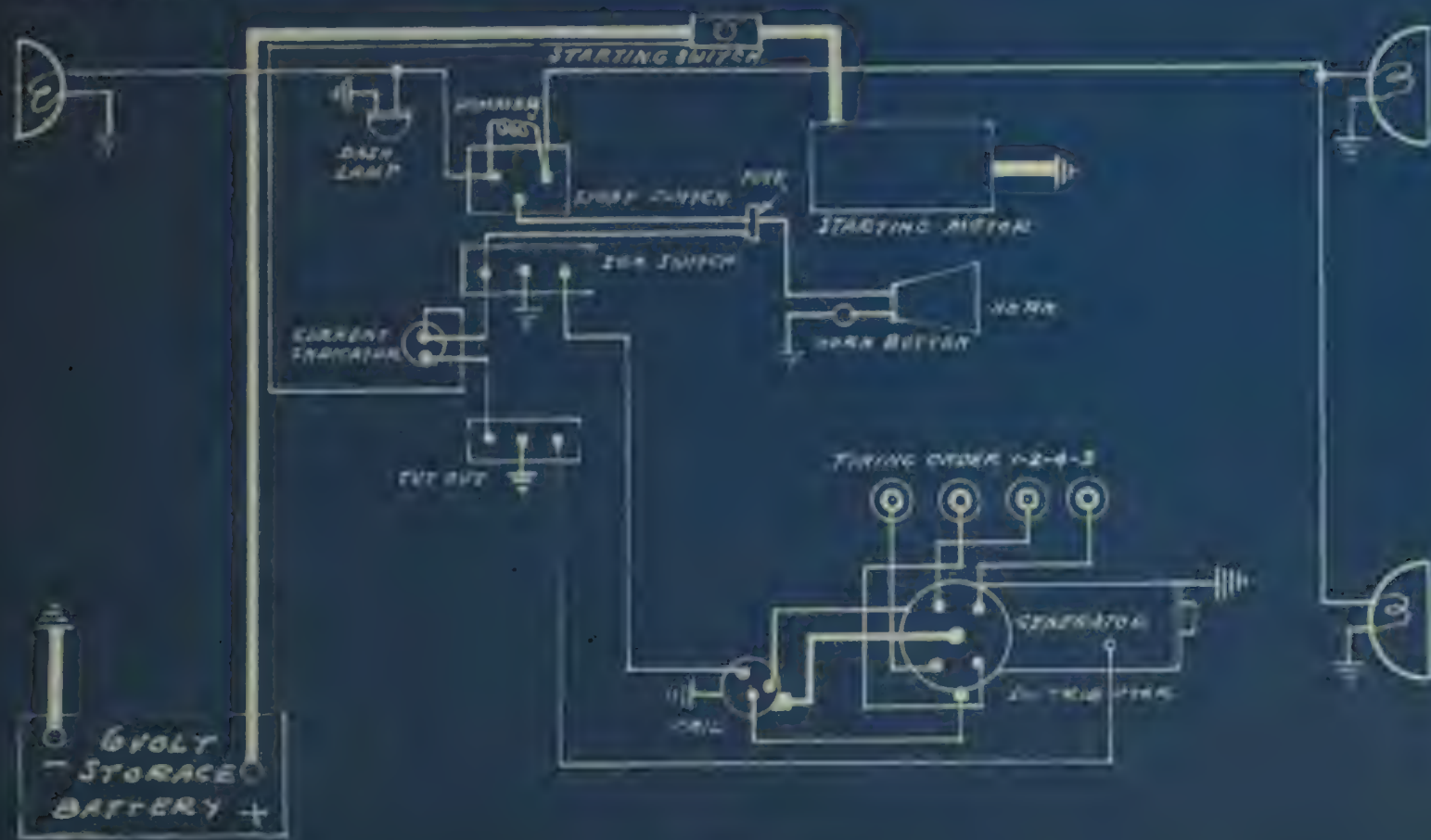
90-5N-PLD-R-O-EX  
FROM MFRS B-F 102012-100685-102605 & 100693





OVERLAND MODEL "4" 1920  
 AUTO-LITE STG. & LTO.  
 CONN. IGI

FRONT, REAR, ENGR. BOOK

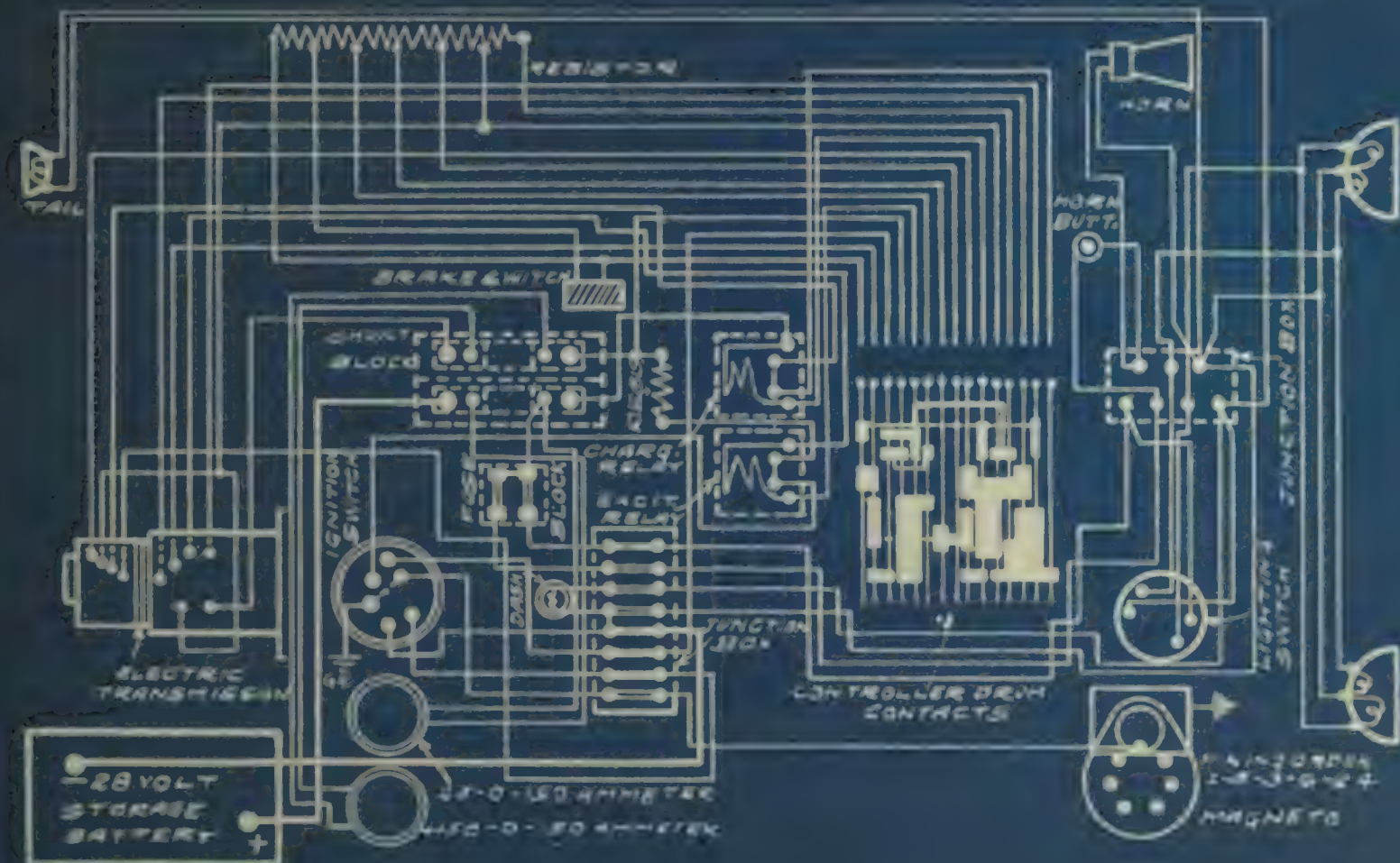




# OWEN MAGNETIC 1918-1919 "42"

OWEN SYSTEM

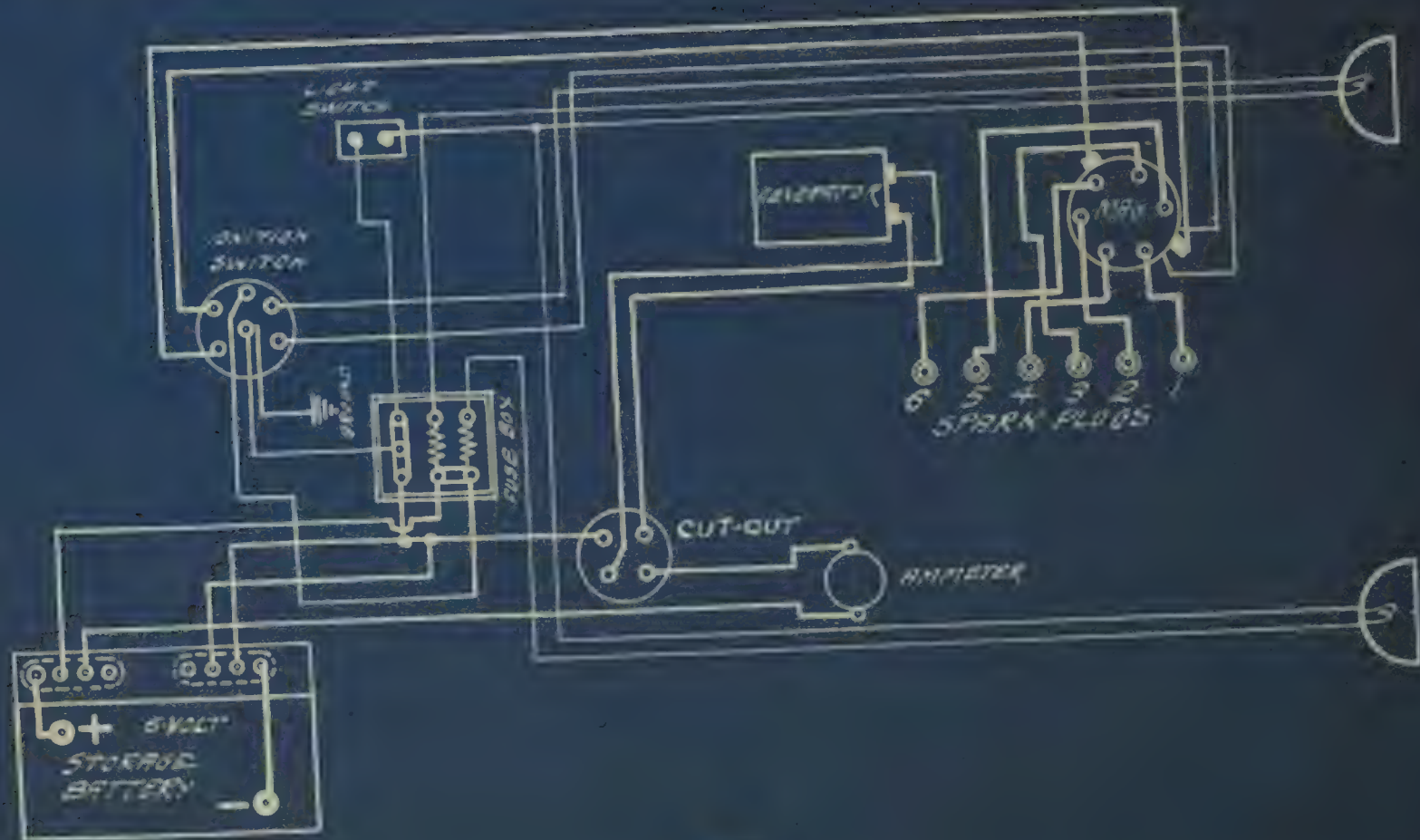
FROM MFRS. B/P 4C-550





# PACKARD 1913 48" BITUR SYSTEM

FROM MFRS. B.F. 1-218



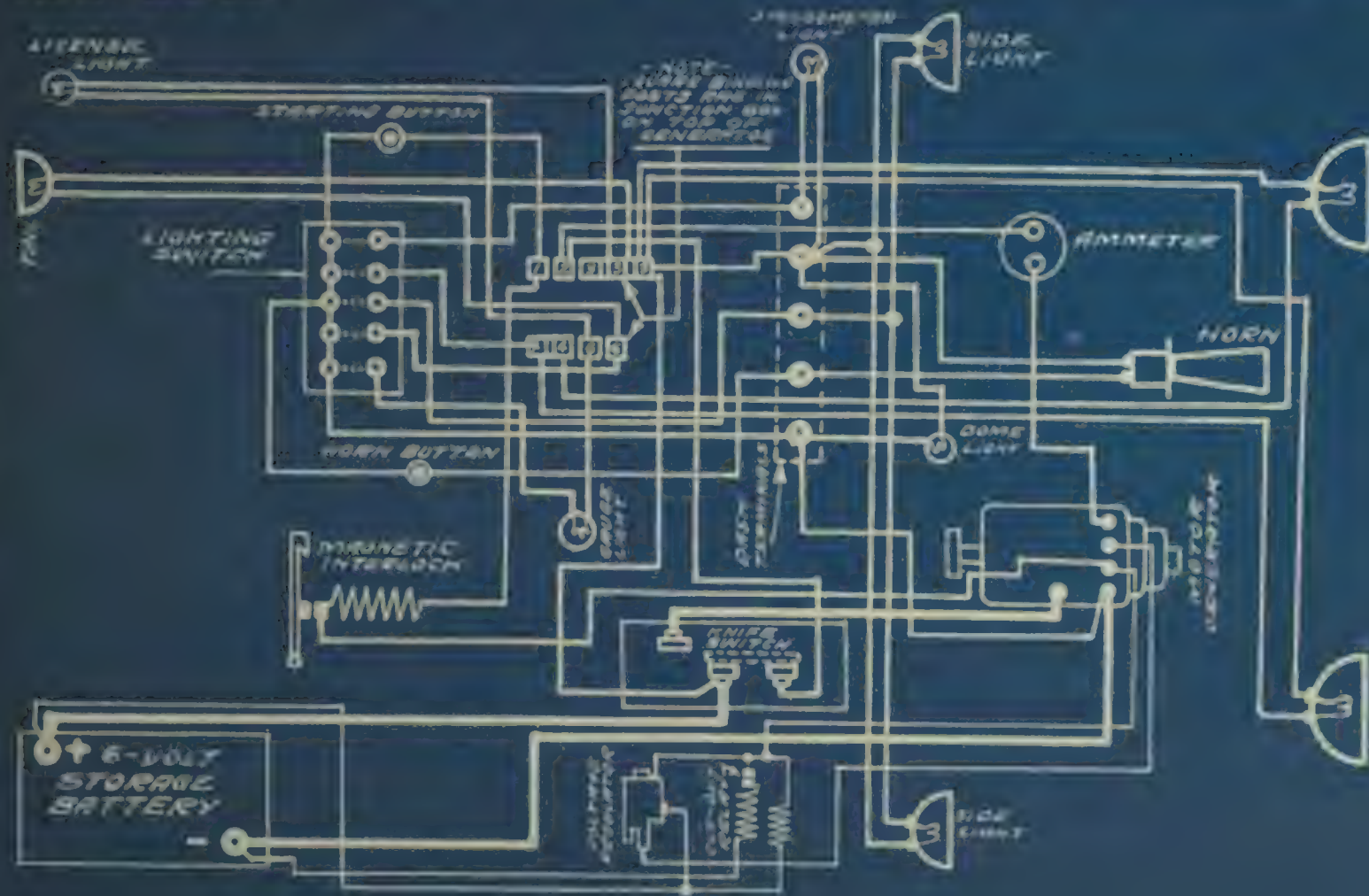
Copyright 1913 by  
AUTOMOTIVE PUBLISHING CO.  
CHICAGO, U.S.A.

PACKARD  
DELCO SYSTEM

1914

1-38 & 3-48

FROM PACKARD INSTR.

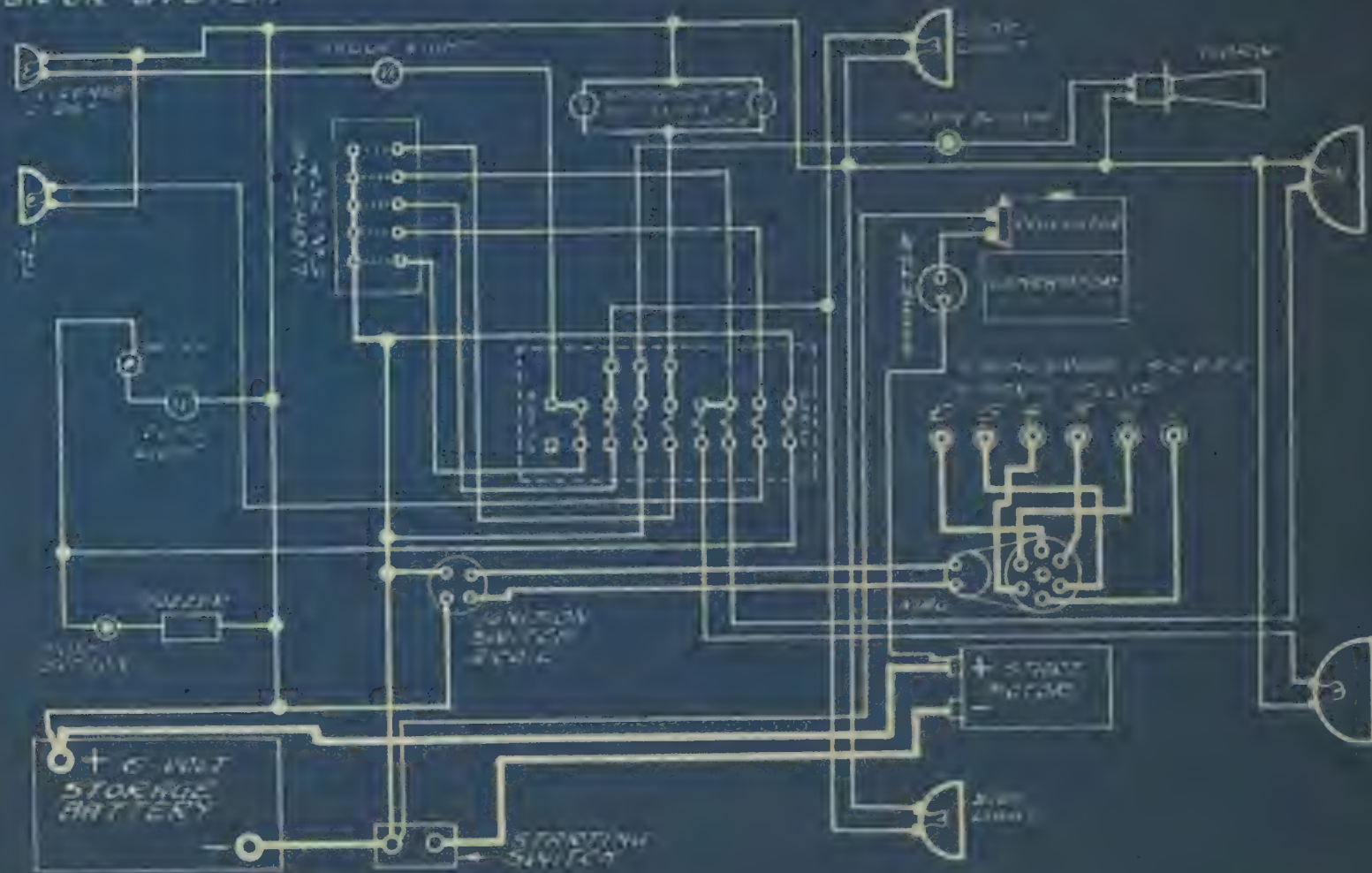


PACKARD  
BIFUR SYSTEM

1914

2-38 & 4-48

ARM PACKED INTER



ALLEN & CO. ENGINEERS  
NEW YORK, N. Y.

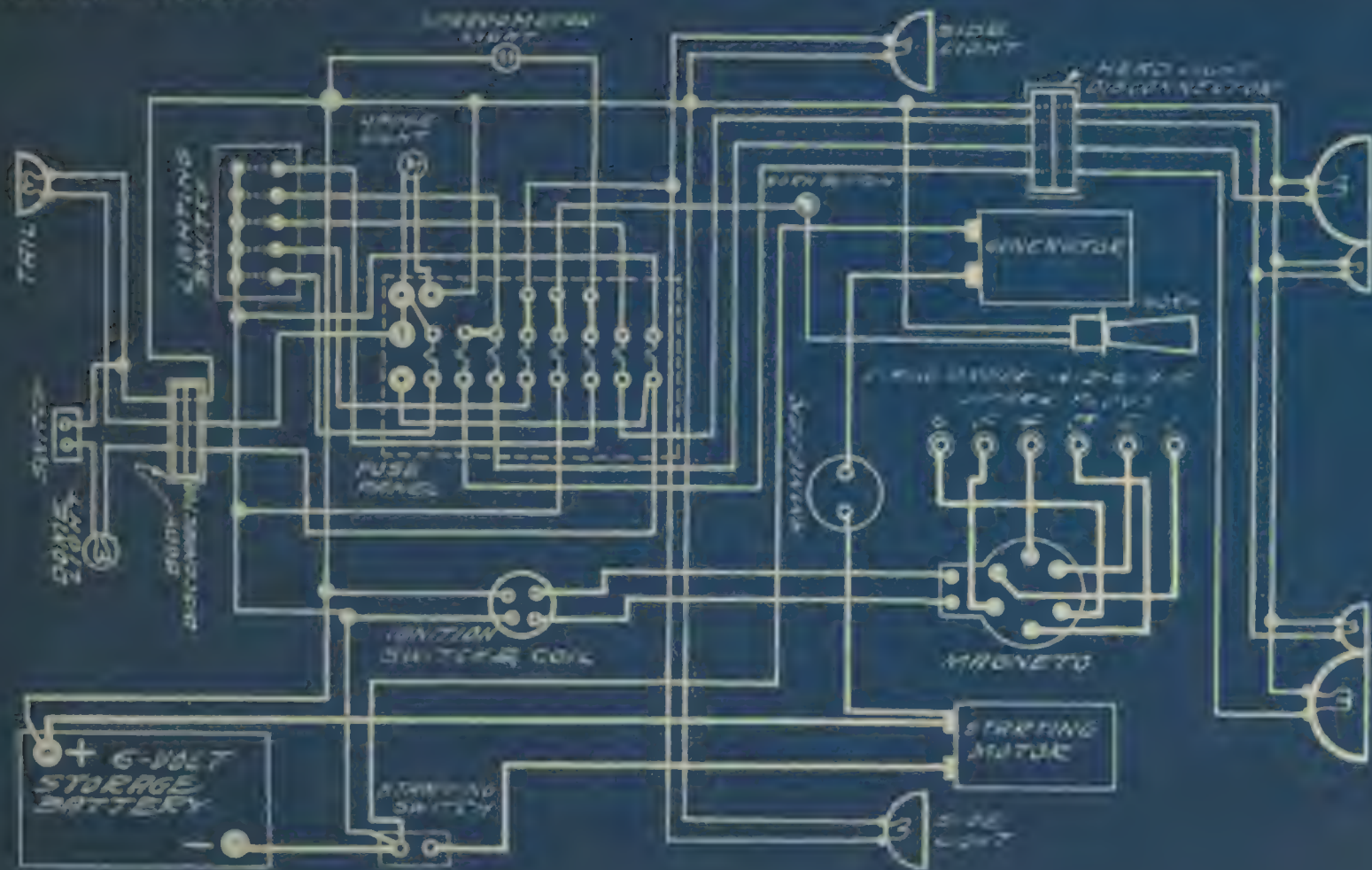


PACKARD  
BIZUR SYSTEM

1915

3-38 & 5-48

FROM BIZUR BRJ08



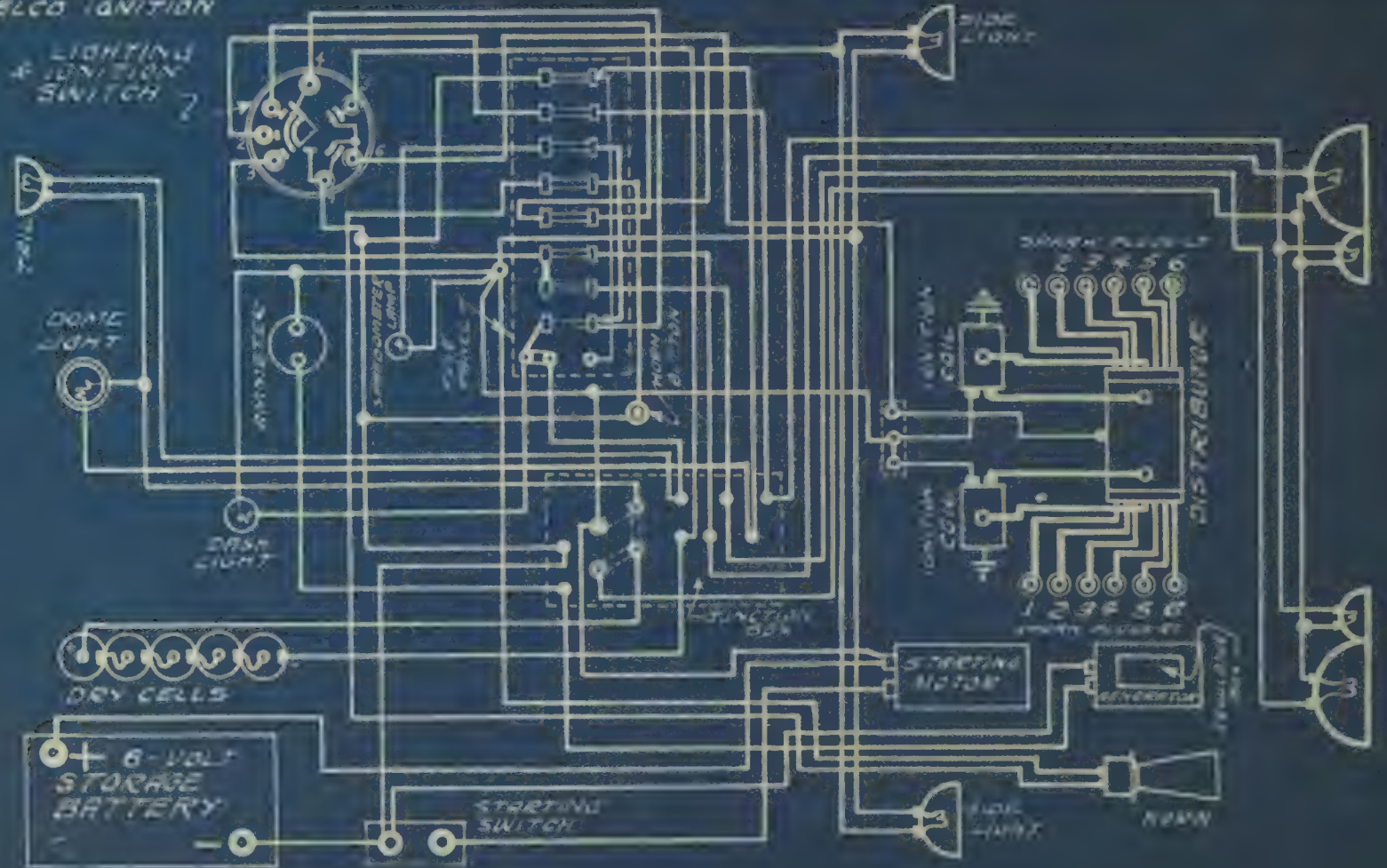
# PACKARD

# 1916

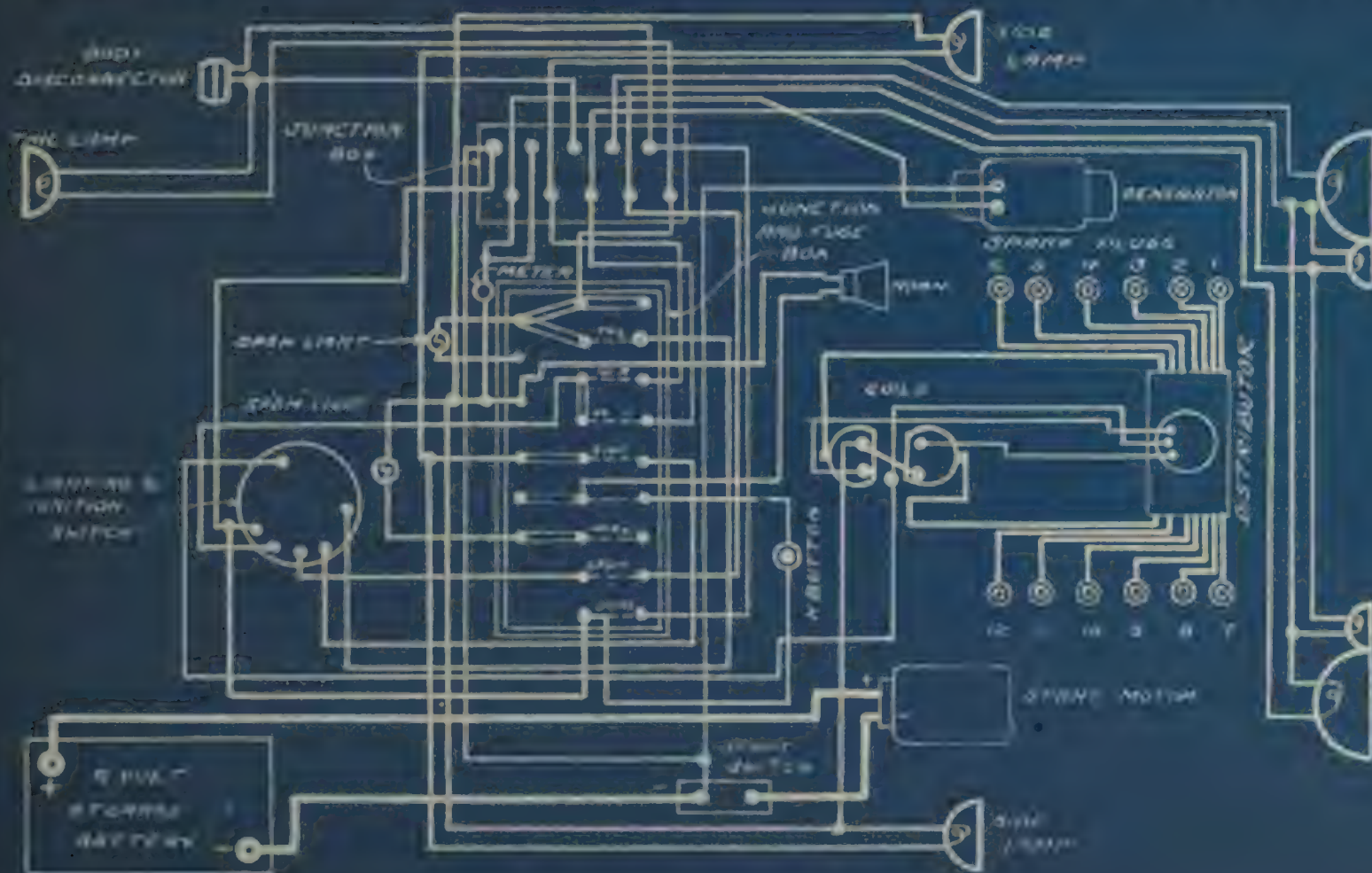
# 125 & 135

FROM PACKARD 821-535

WIGOR SYSTEM  
DELCO IGNITION







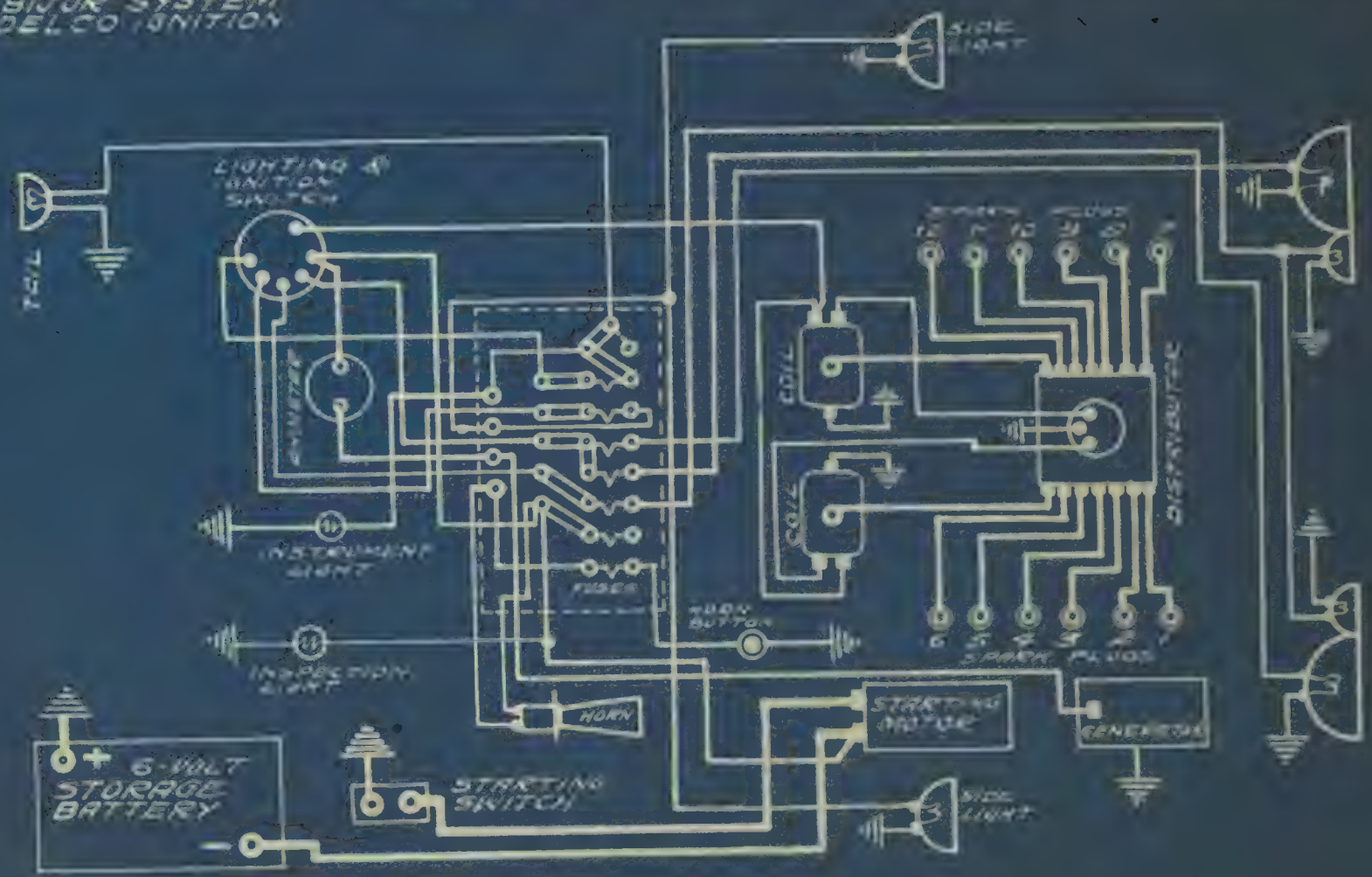


**PACKARD**  
 SIXUR SYSTEM  
 DELCO IGNITION

1918-19-20

3-25, 3-35

200M HERS BA 1-475

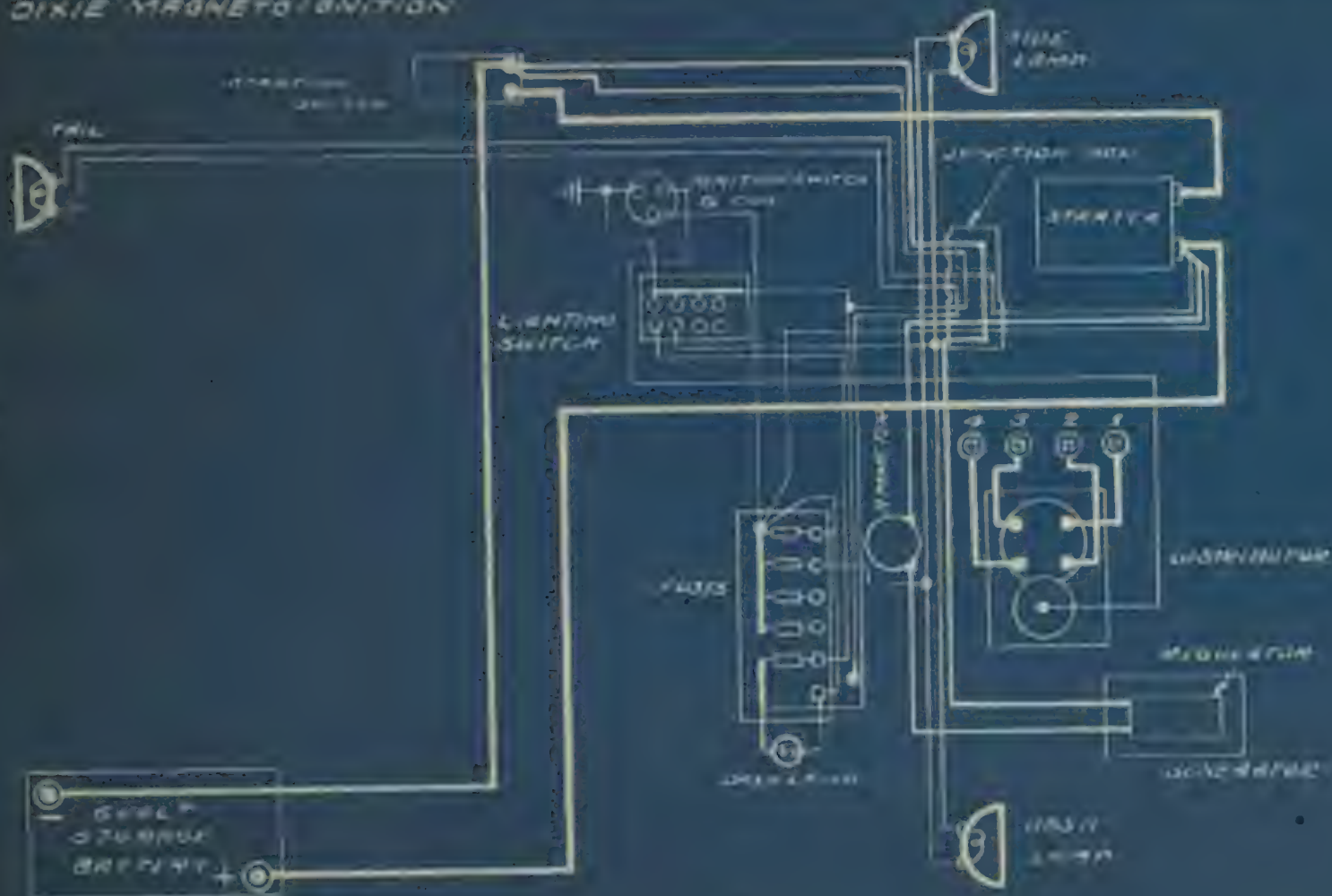


Automotive Electrical Dept.  
 Packard Motor Co.

# PACKARD TRUCK 1918 E

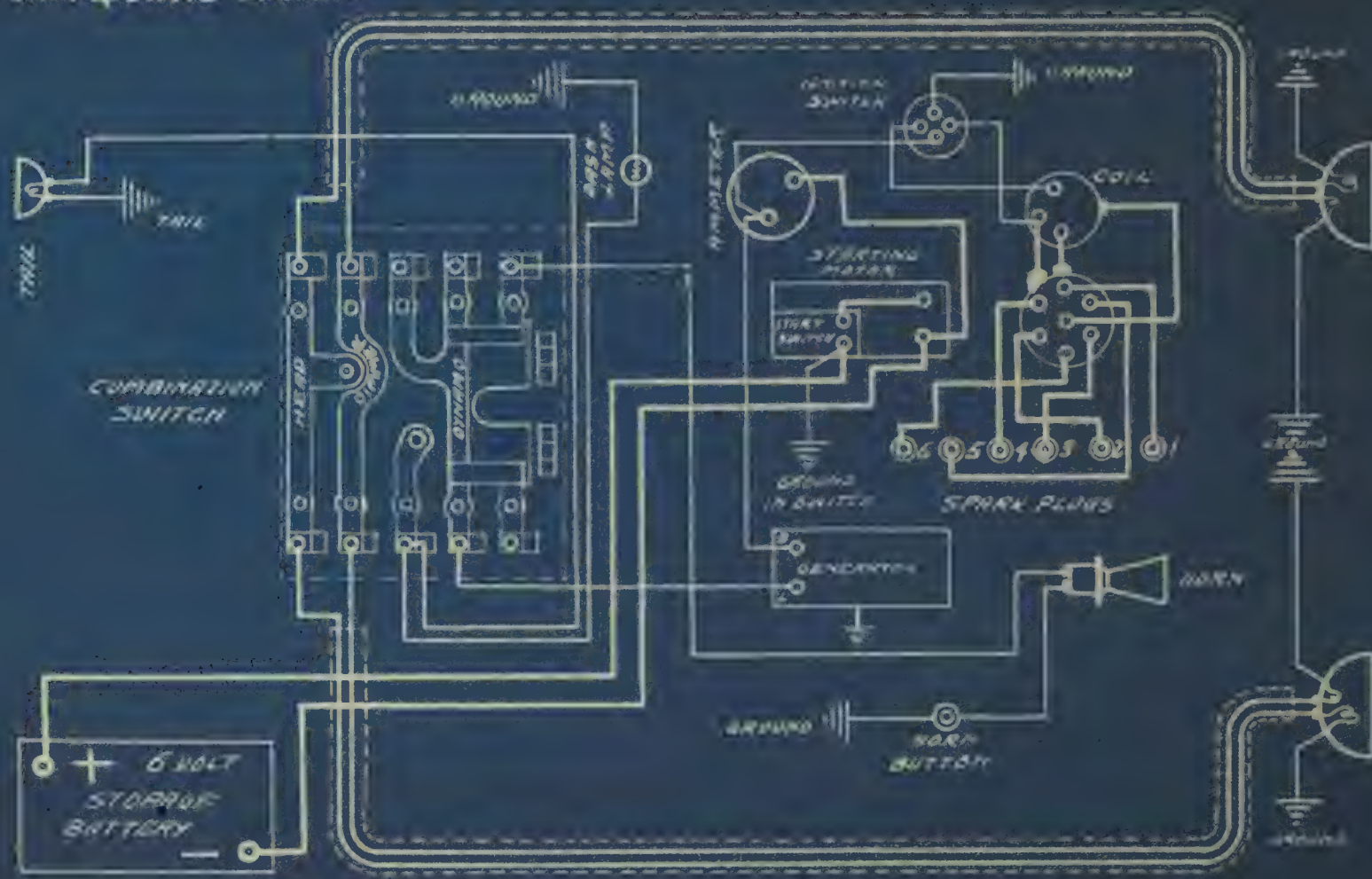
FROM PACKARD MANUAL

SIX VOLT SYSTEM  
DIXIE MAGNETO IGNITION



PAIGE 1916 G-6 & H-6  
GRAY & DAVIS SYSTEM

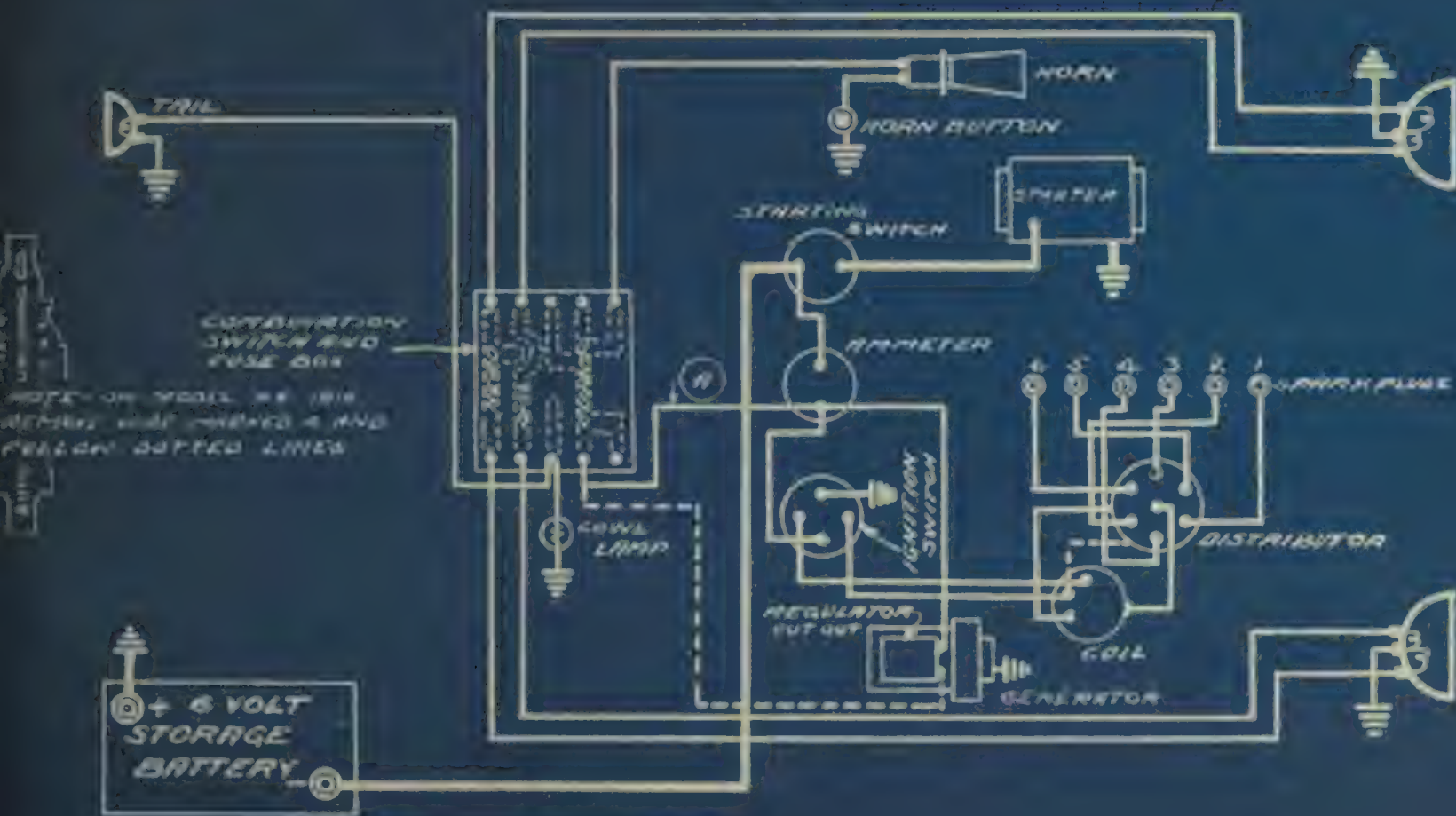
FROM MFRS BR. D-775



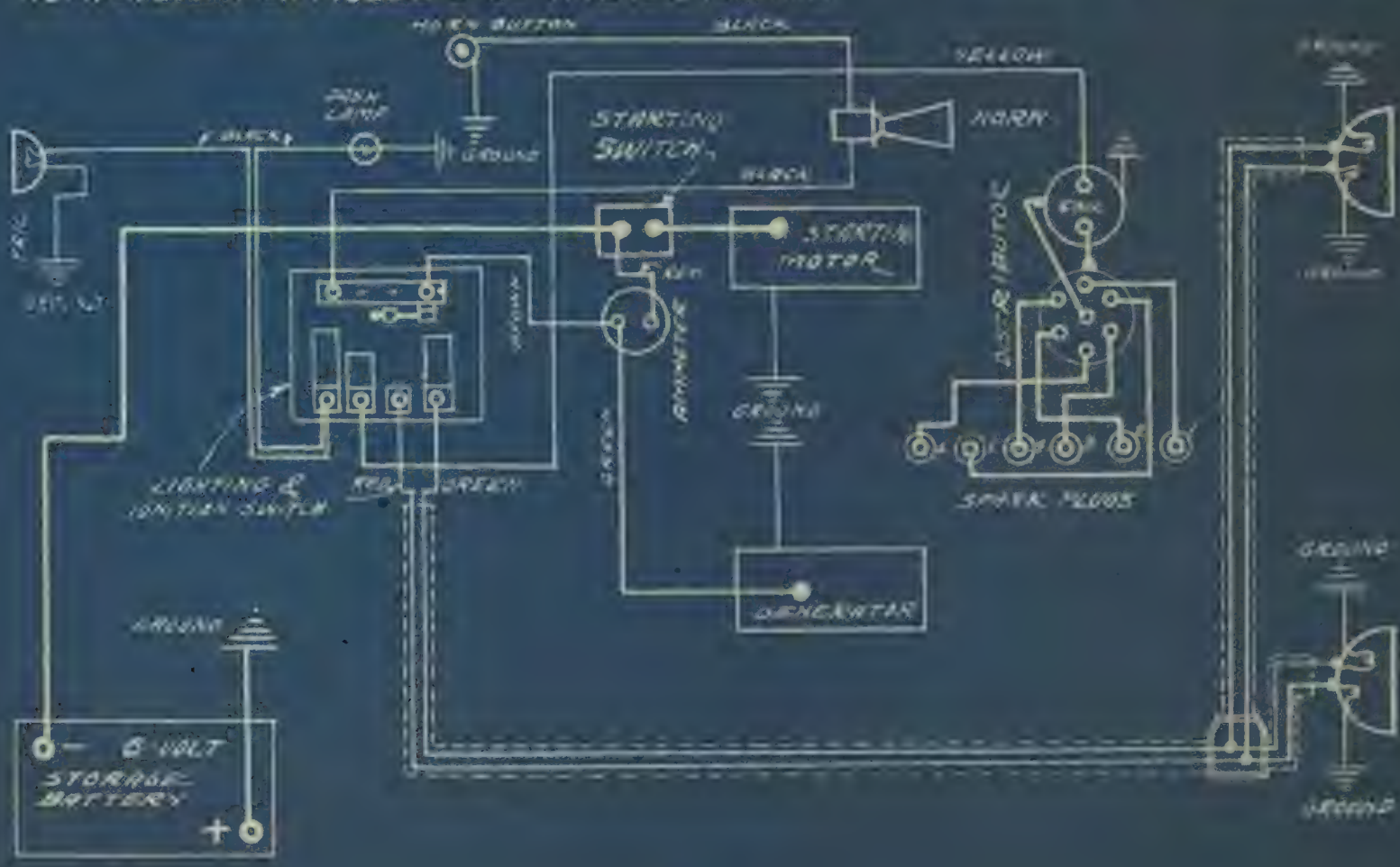


PRICE 1916-1917 6-46 6-38 H-6  
GRAY & DAVIS SYSTEM

FROM APRIL 20 1917

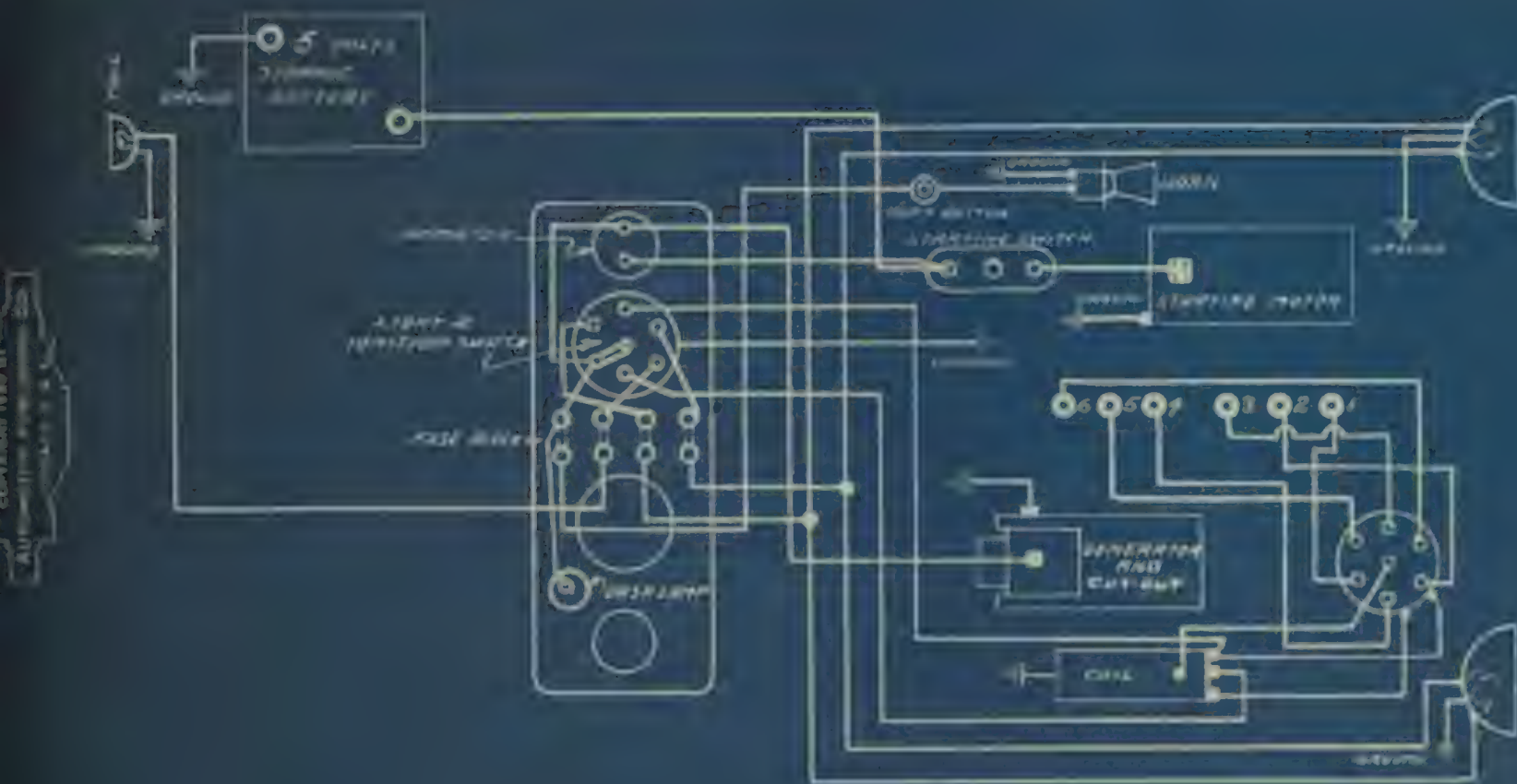


**PAIGE 1918-1919-1920 ALL MODELS.** FROM MFRS. WPA. D-255RD255  
 GRAY & DAVIS STARTING & LIGHTING SYSTEM WITH REMY IGNITION SYSTEM ON MODEL 5-39 CARS  
 REMY SYSTEM ON MODEL 6-55 AND 1919 MODELS.



PAN-AMERICAN 1918 MODEL G4-G5  
GRAPHIC SYSTEM

FROM MRS BLUE PRINT



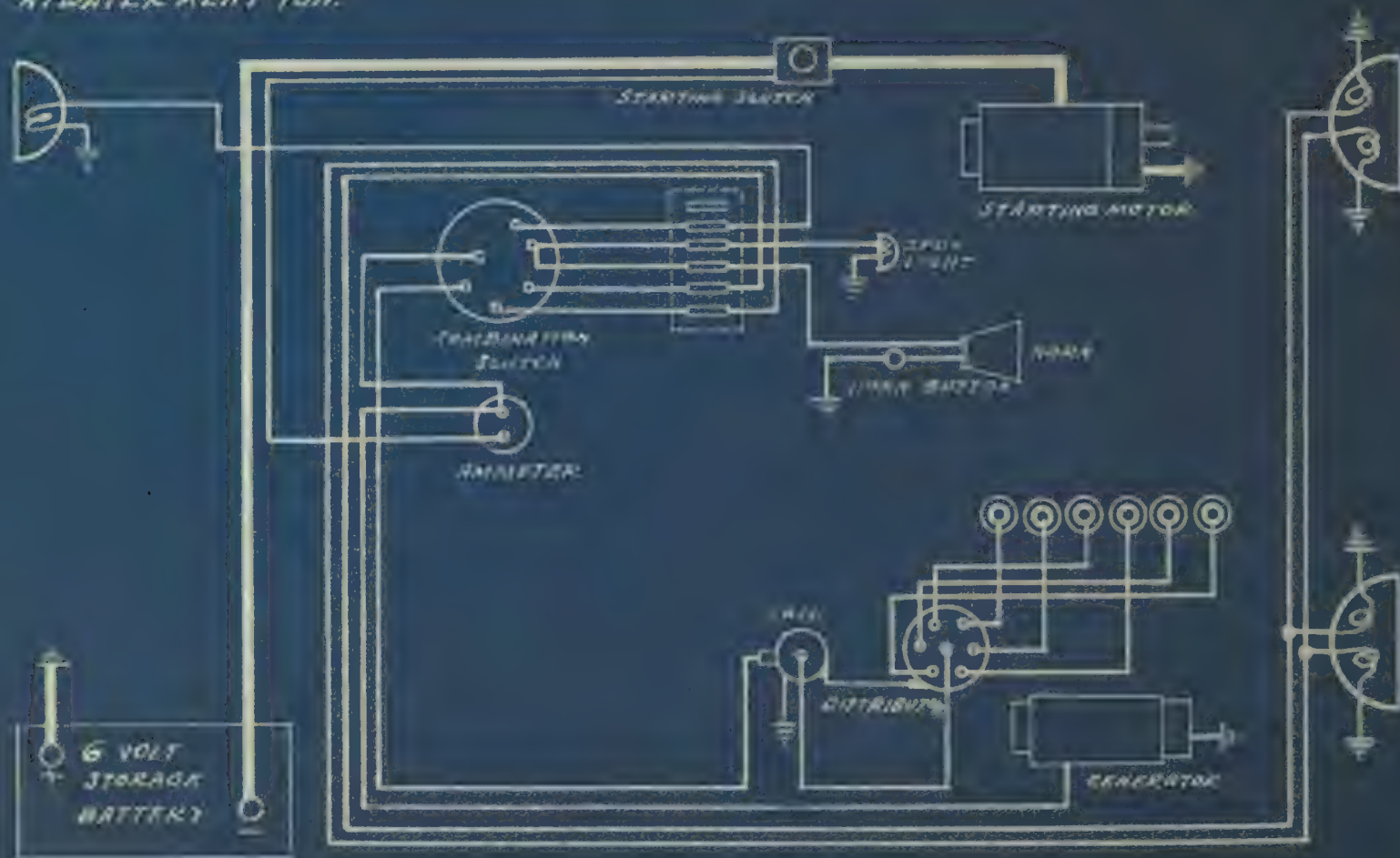


# PAN-AMERICAN AMERICAN BEAUTY 1920

WESTINGHOUSE SYSTEM

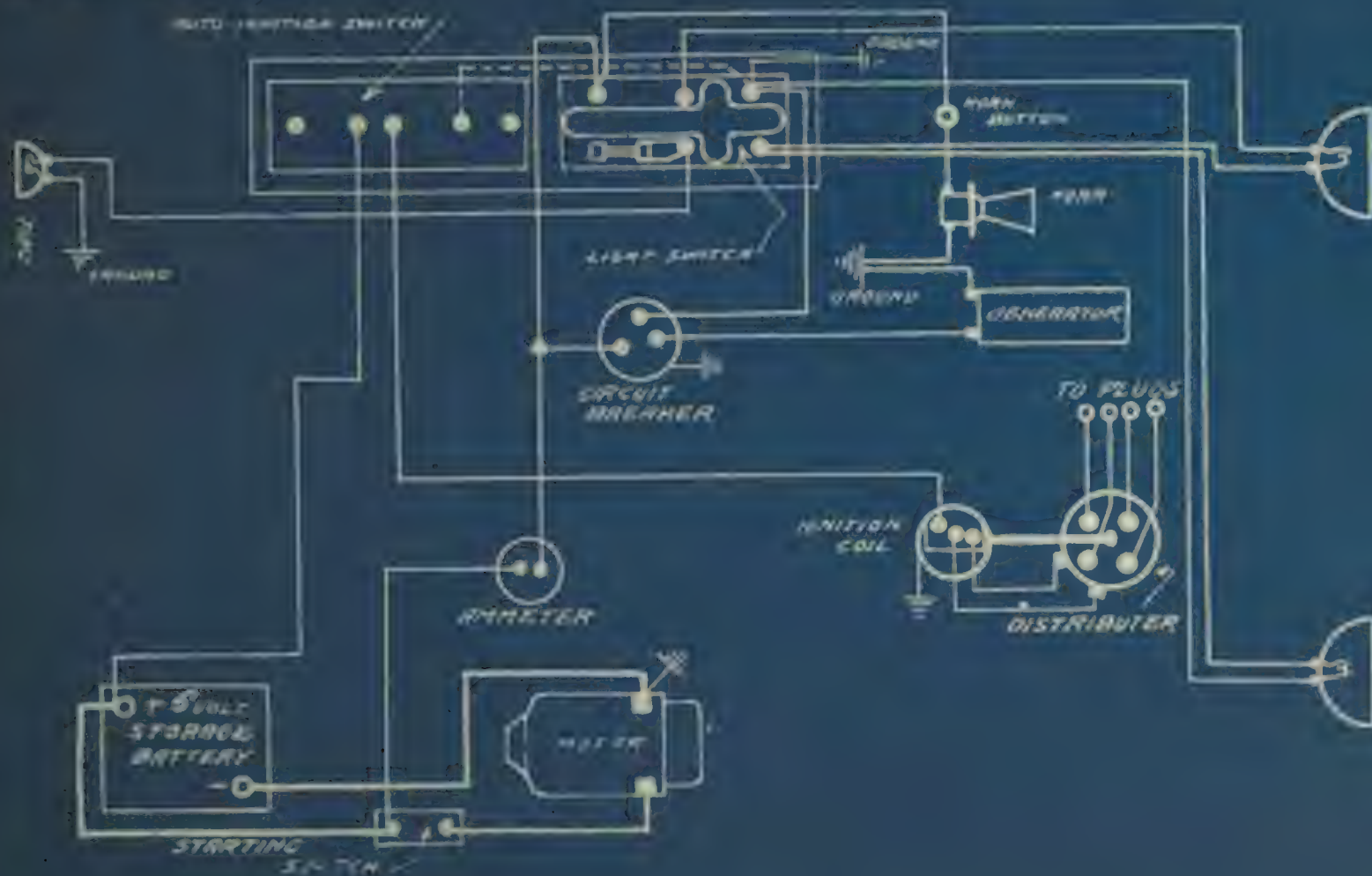
AT WATER KENT IGH.

FROM MFGS. DRAWING



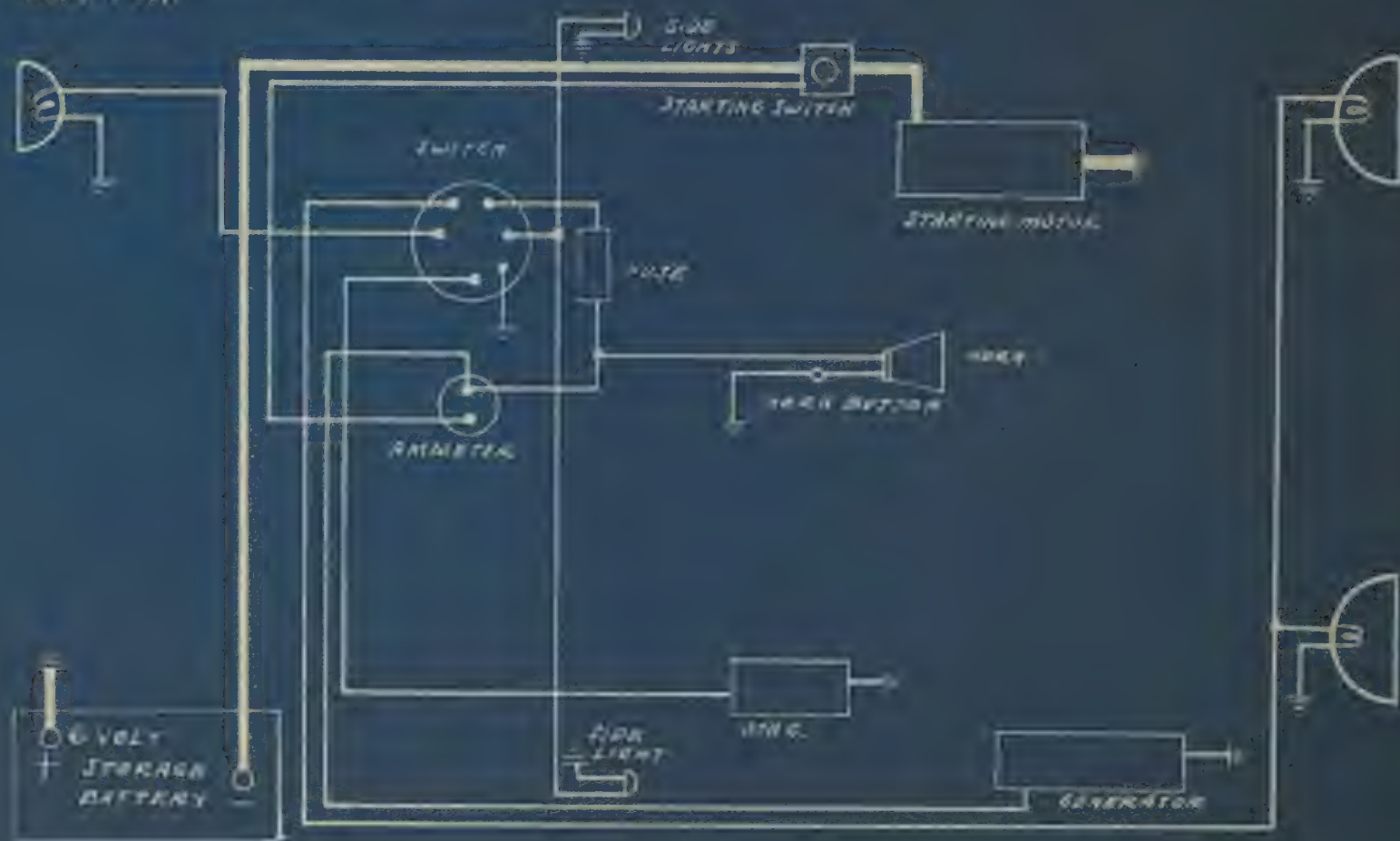
# PANHARD TRUCKS MODELS "A" & "B" 1918 AUTOLITE SYSTEM

FROM FACTORY SP-AB 64-



**PARKER TRUCK** ALL MODELS  
**WESTINGHOUSE SYSTEM**  
**MAG. IGN.**

FROM MFRS. INST. BOOK



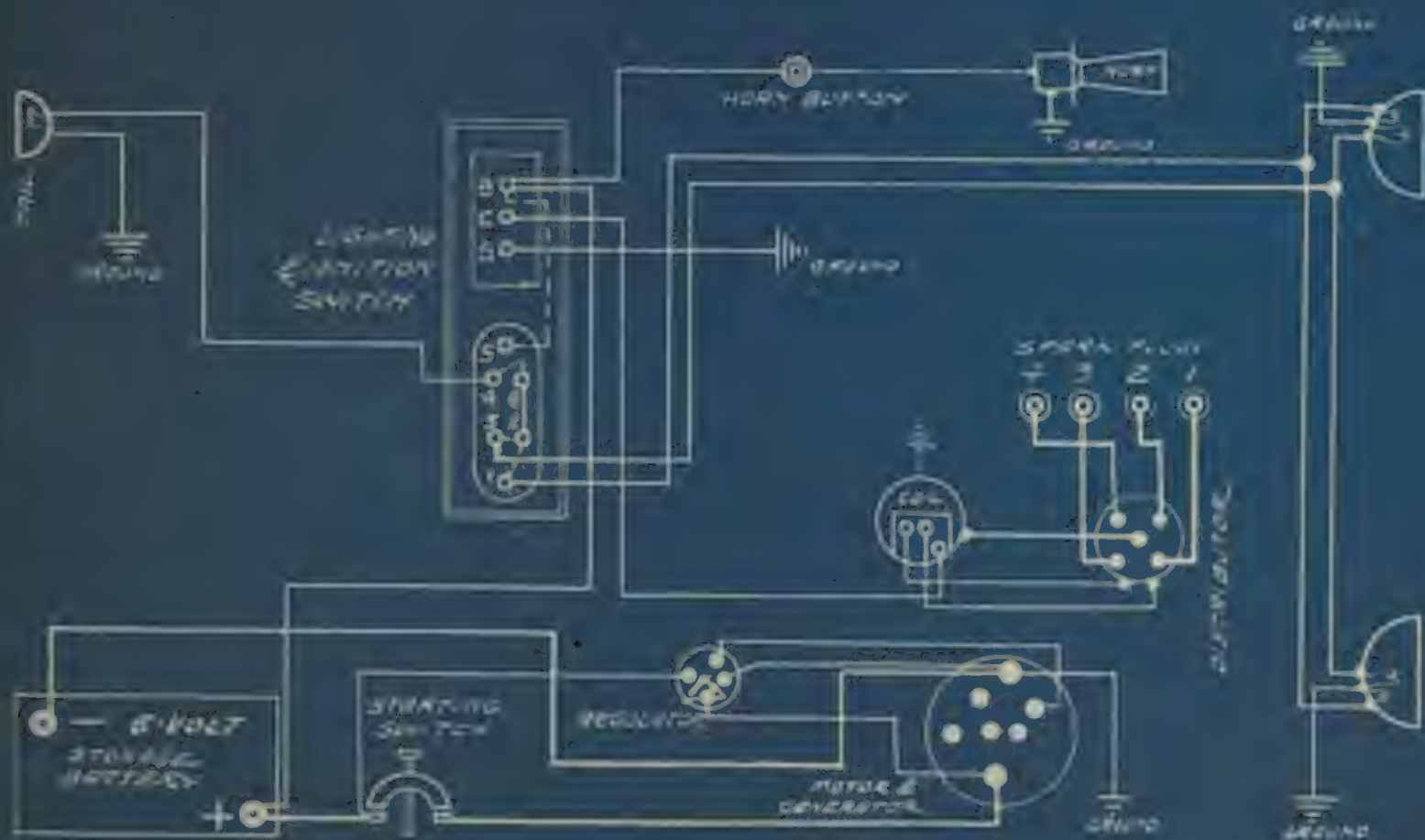
WESTINGHOUSE PUBLISHING CO.  
 PITTSBURGH, PA.



# PARTIN-PALMER 1915

"38"

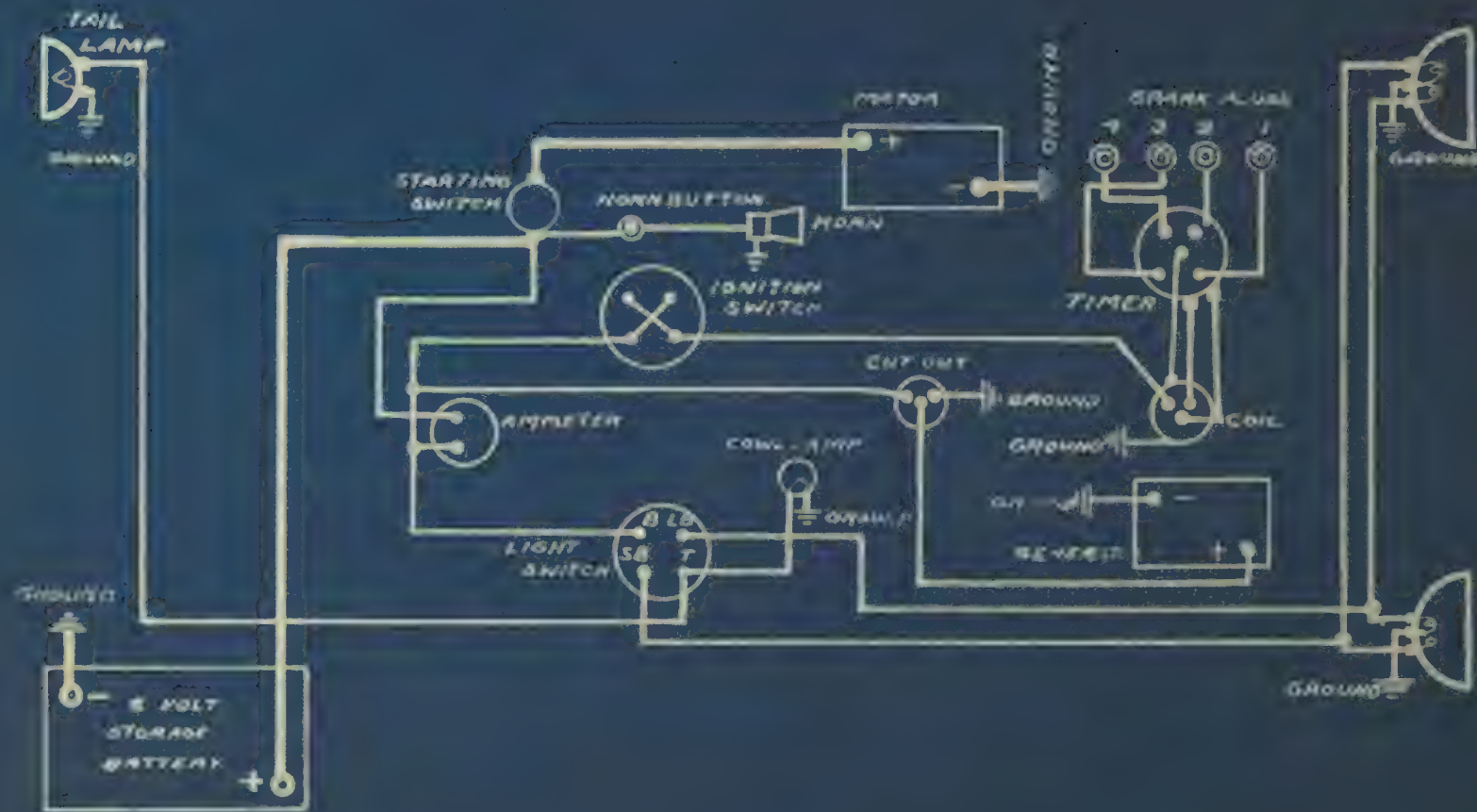
FROM A-C BR X-515

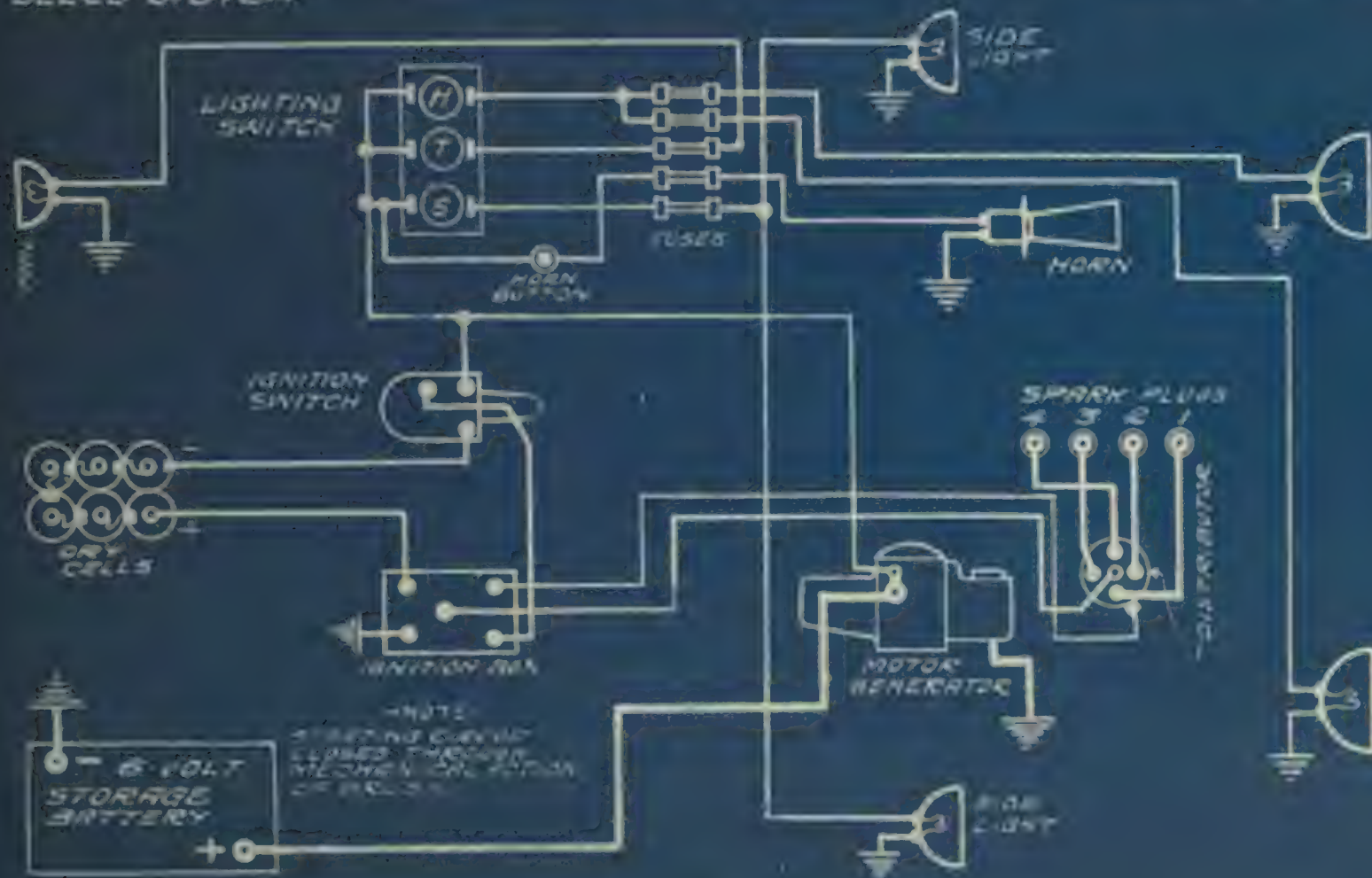


# PARTIN-PALMER 1917 "32" AND 1918 "ULTRA 4-FORTY"

WIRE SYSTEM

FROM HICAS OF 1917-18

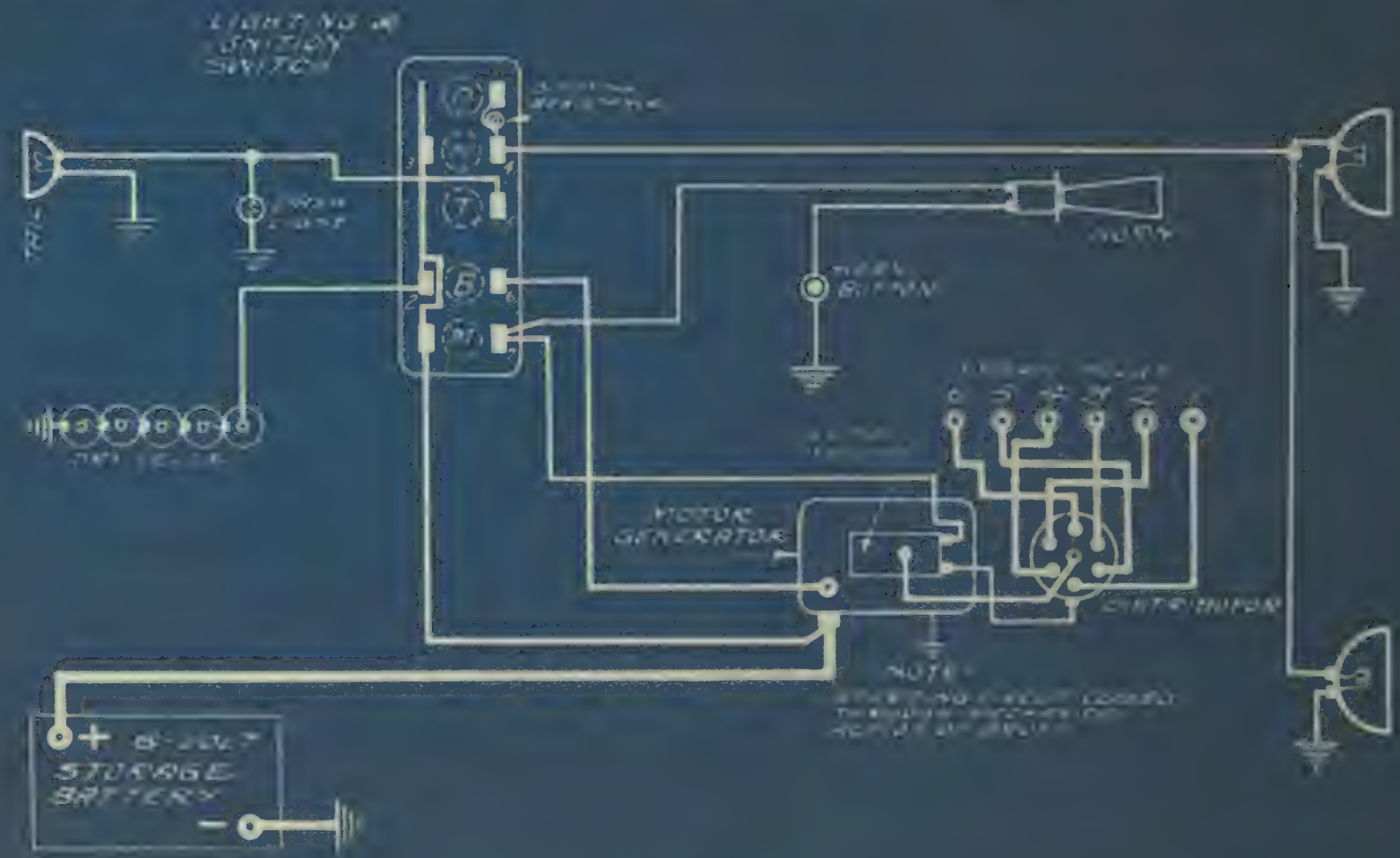


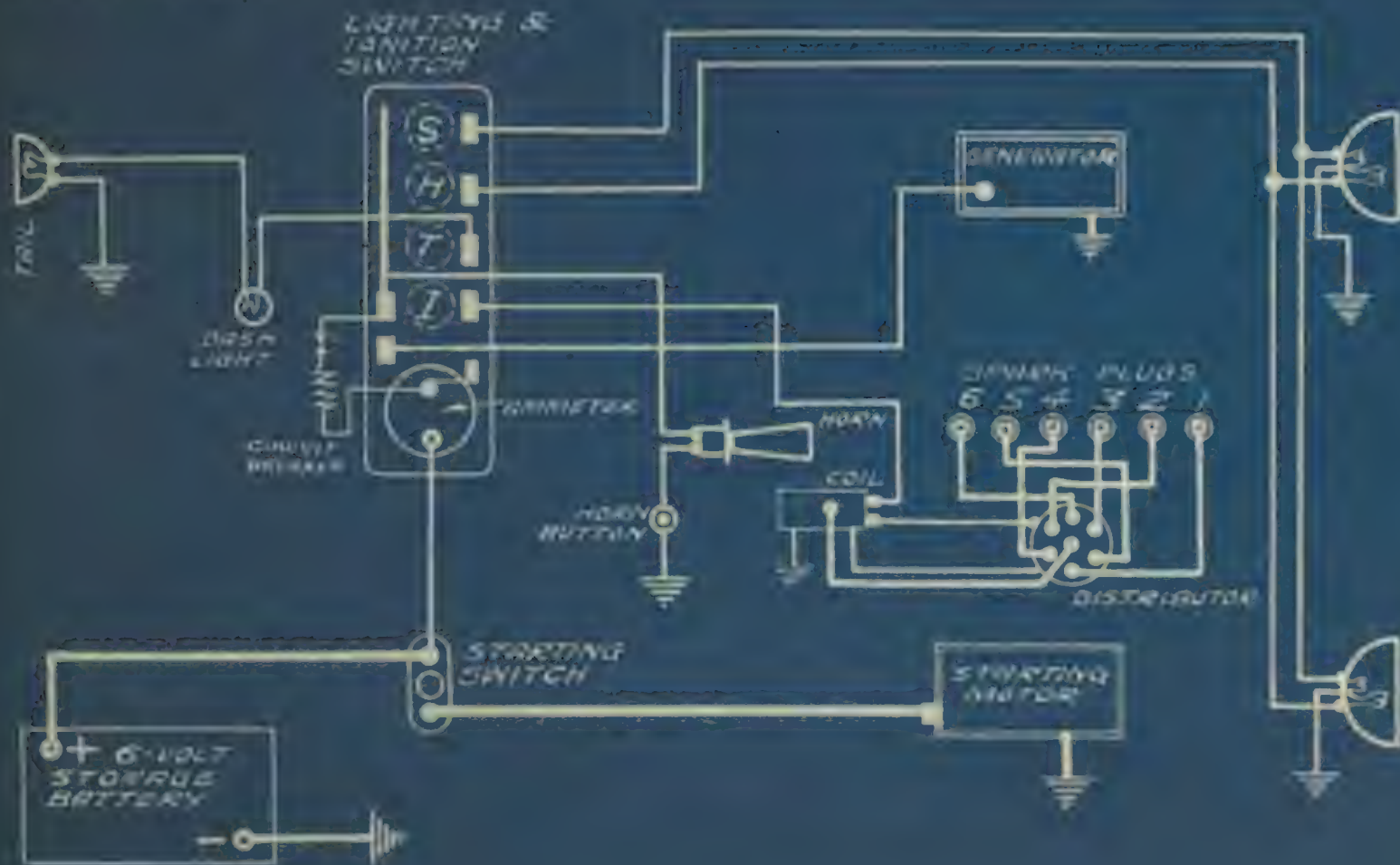




# PATERSON 1915 4-32 & 6-48

SWAN DECCO WINDMILL



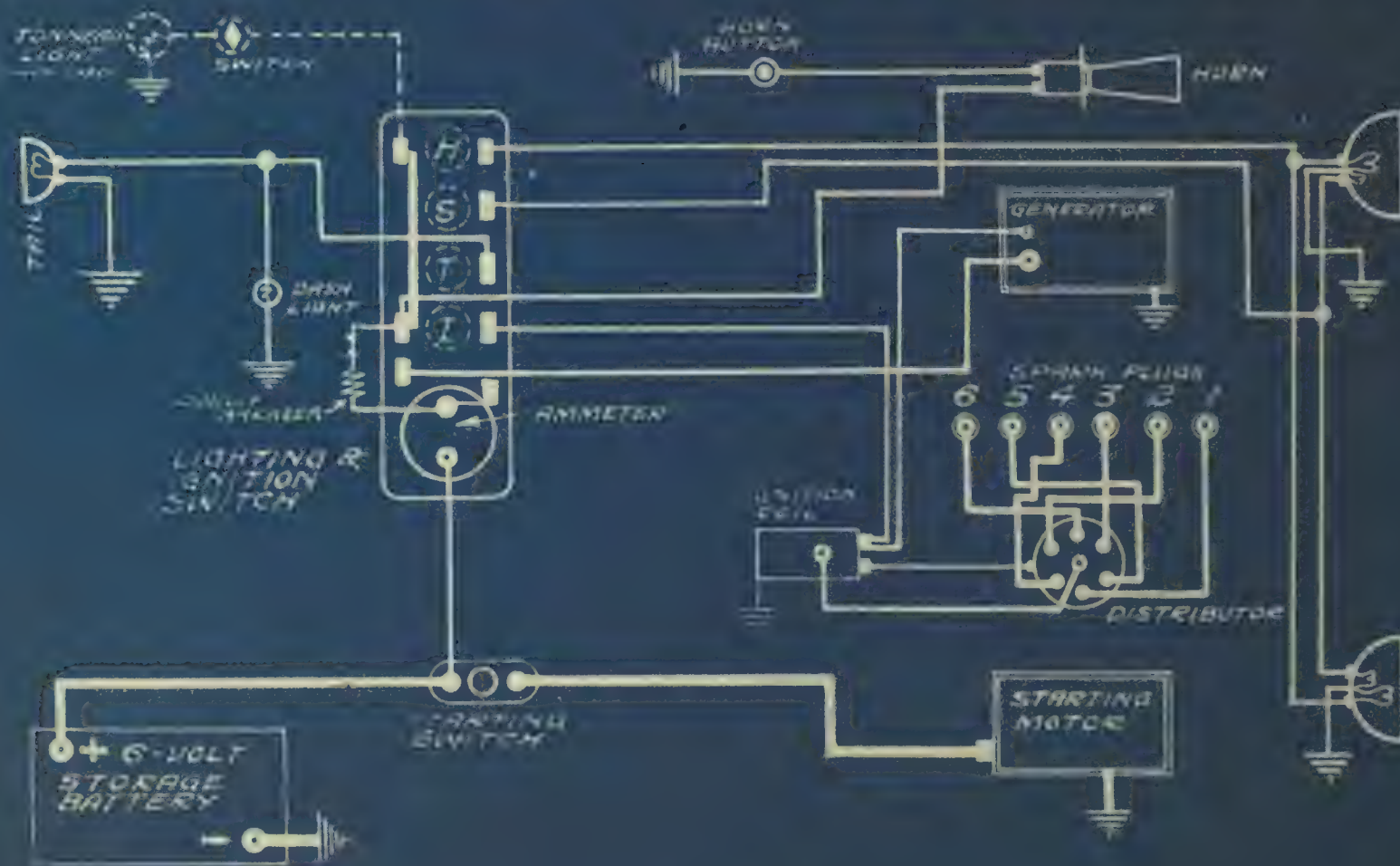


# PATERSON 1917-18

DELCO SYSTEM

6-45 & 6-45R - 1919 6-46

FROM DELCO MANUAL

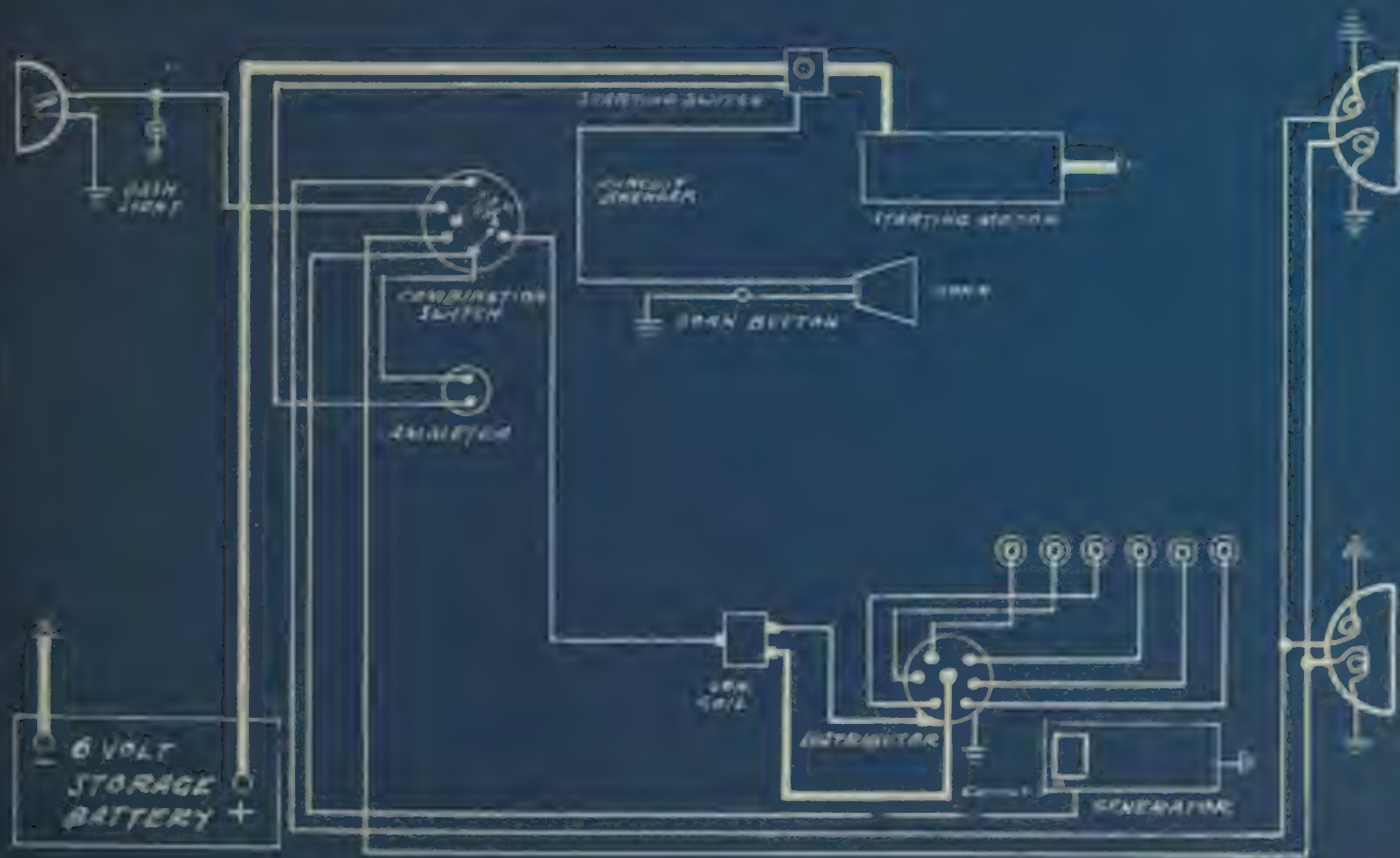


DELCO SYSTEM PAT. 1917-18  
 AUTOMOTIVE PUBLISHING CO.  
 1917-18-19



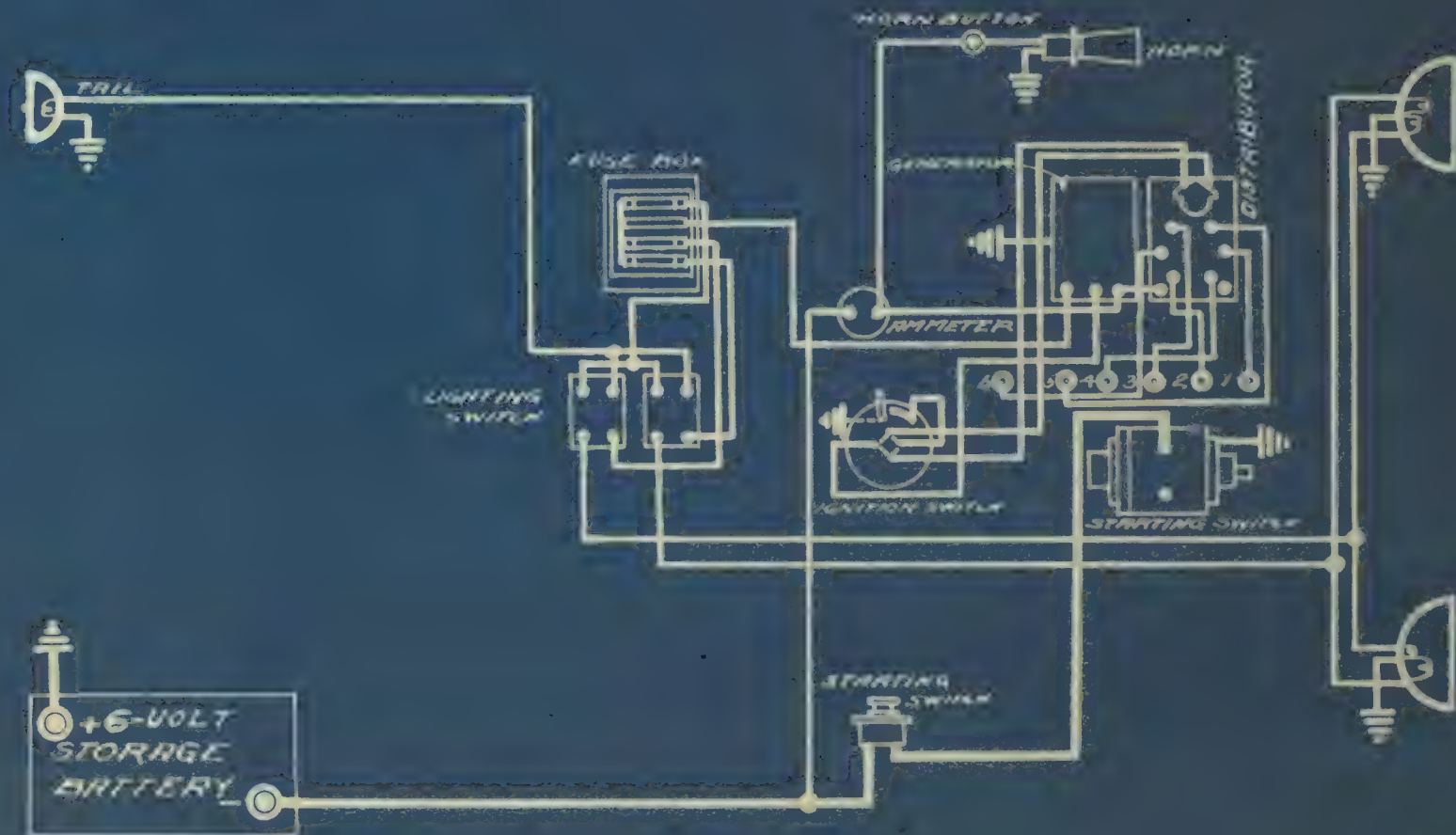
# PATERSON 6-47 1920 DELEO SYSTEM

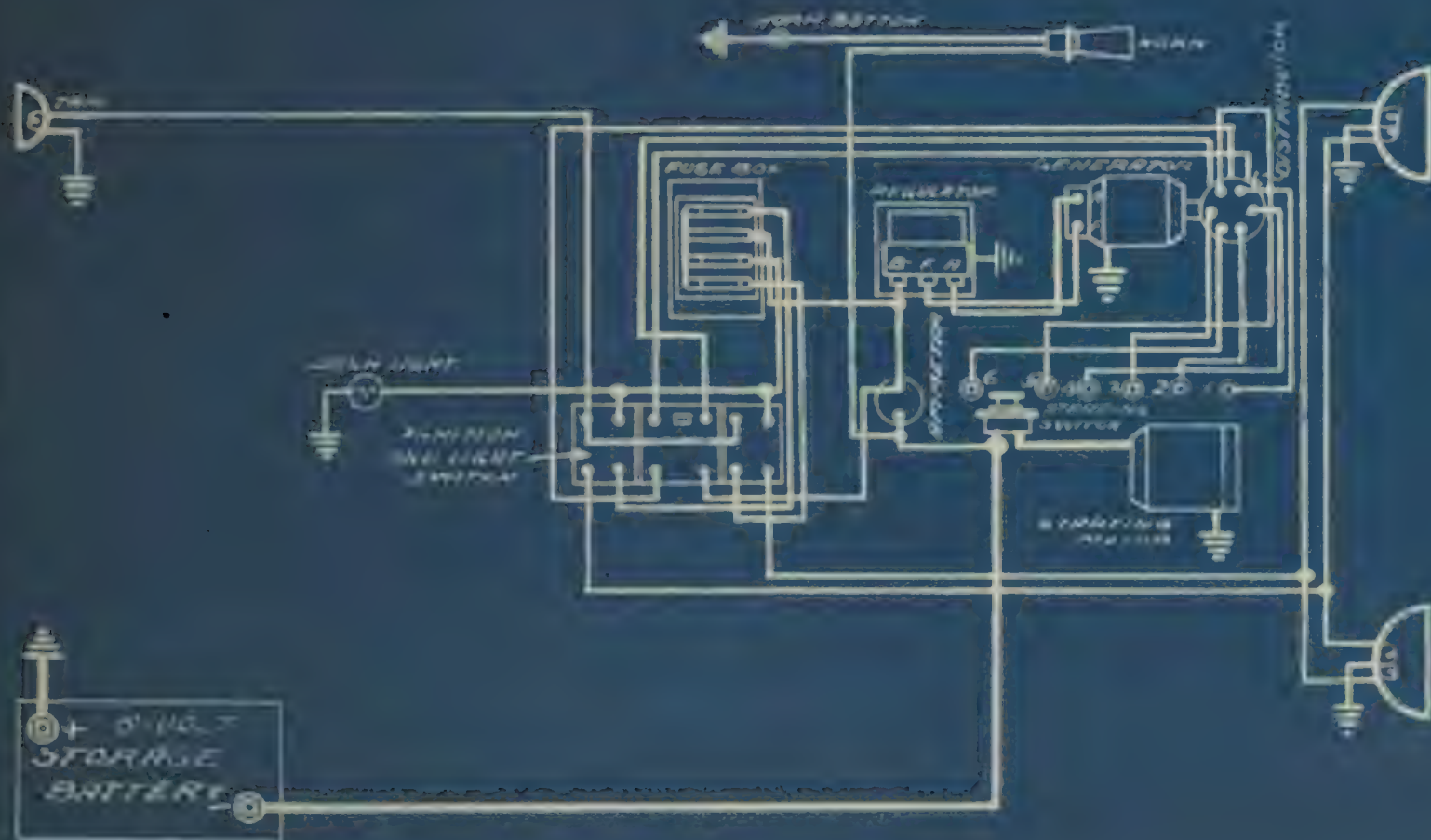
FROM WIRE INLET HOSE



# *PATHFINDER 1915* *WESTINGHOUSE SYSTEM*

*FROM WEST. MANUFACTURING CO.*

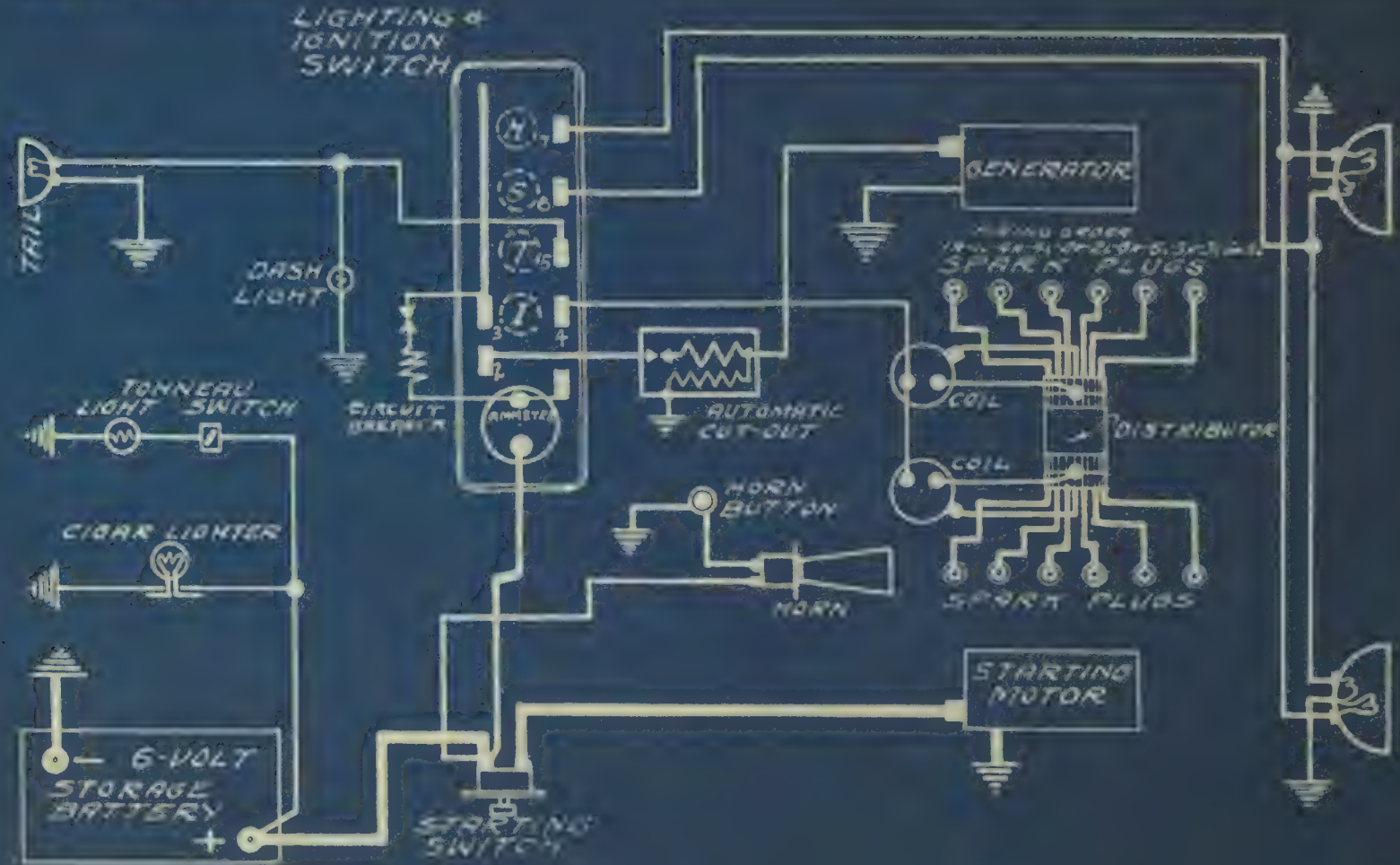






# PATHFINDER 1916 "ONE-B" DELCO SYSTEM

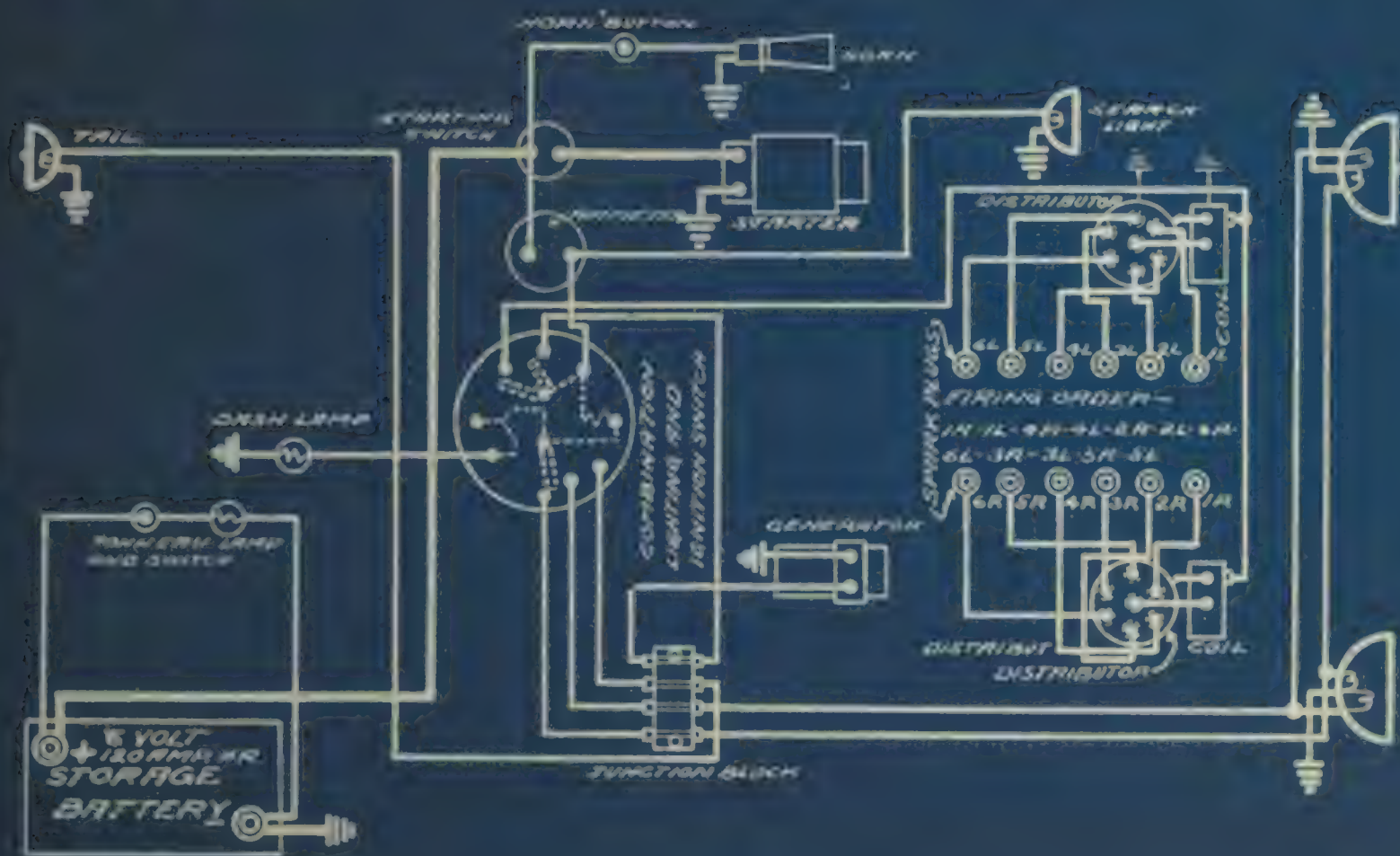
FROM DELCO MANUAL



# PATHFINDER 1917 '12"

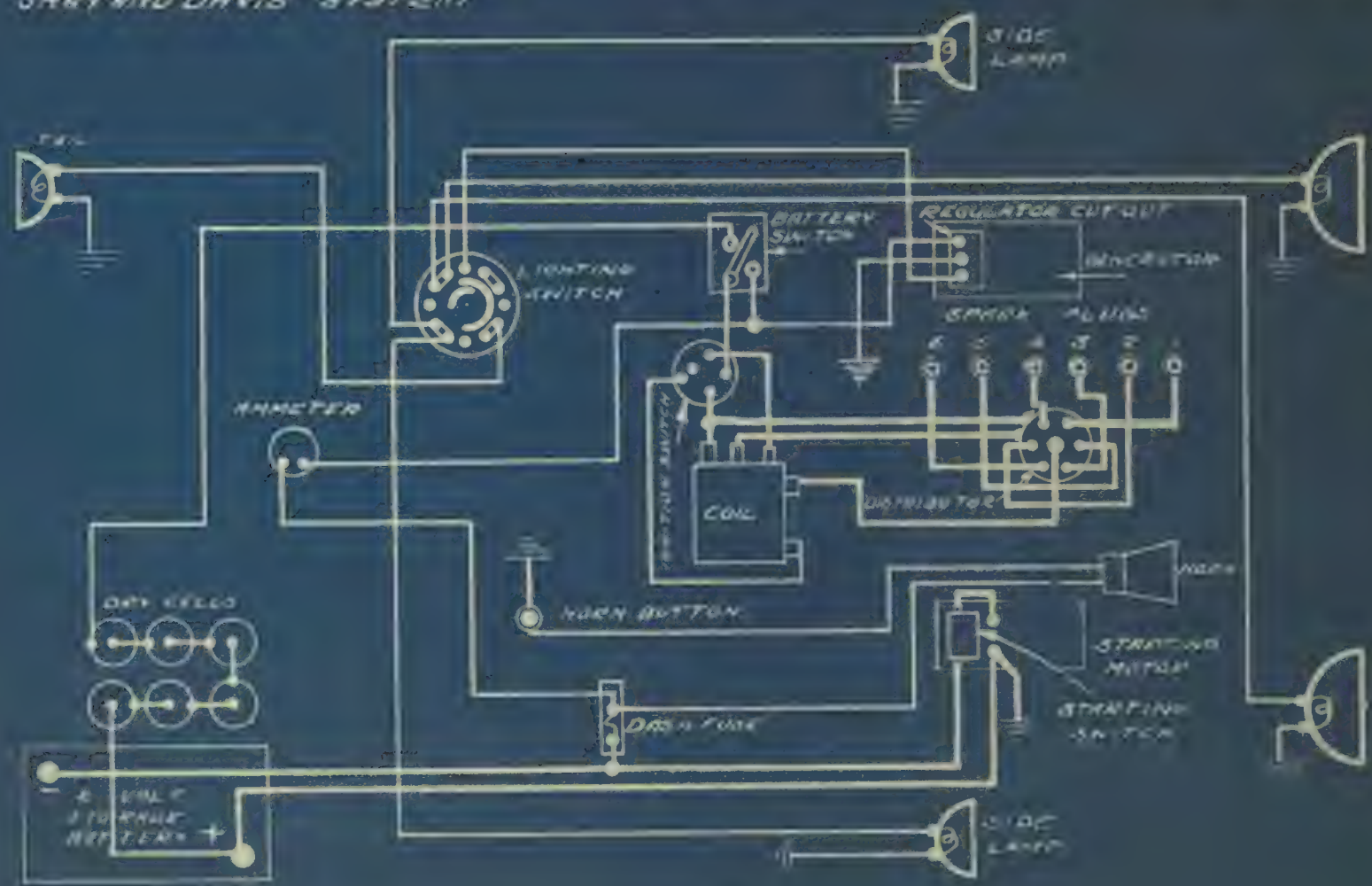
## DELCO SYSTEM

FROM MFGS. D.A.



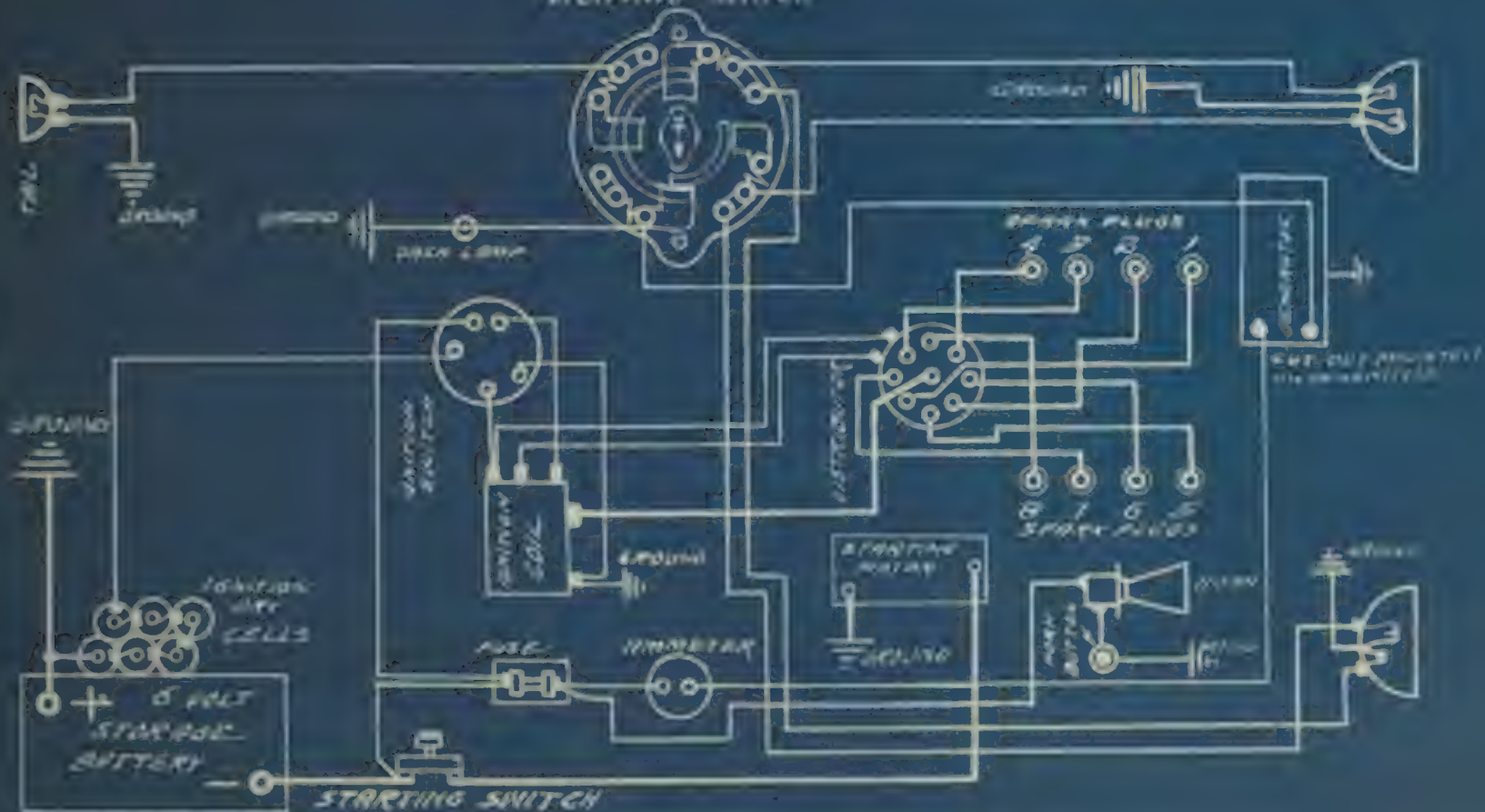
# PEERLESS 1915 55 GRAY AND DAVIS SYSTEM

FROM HERE BEU-OR-ED





LIGHTING SWITCH

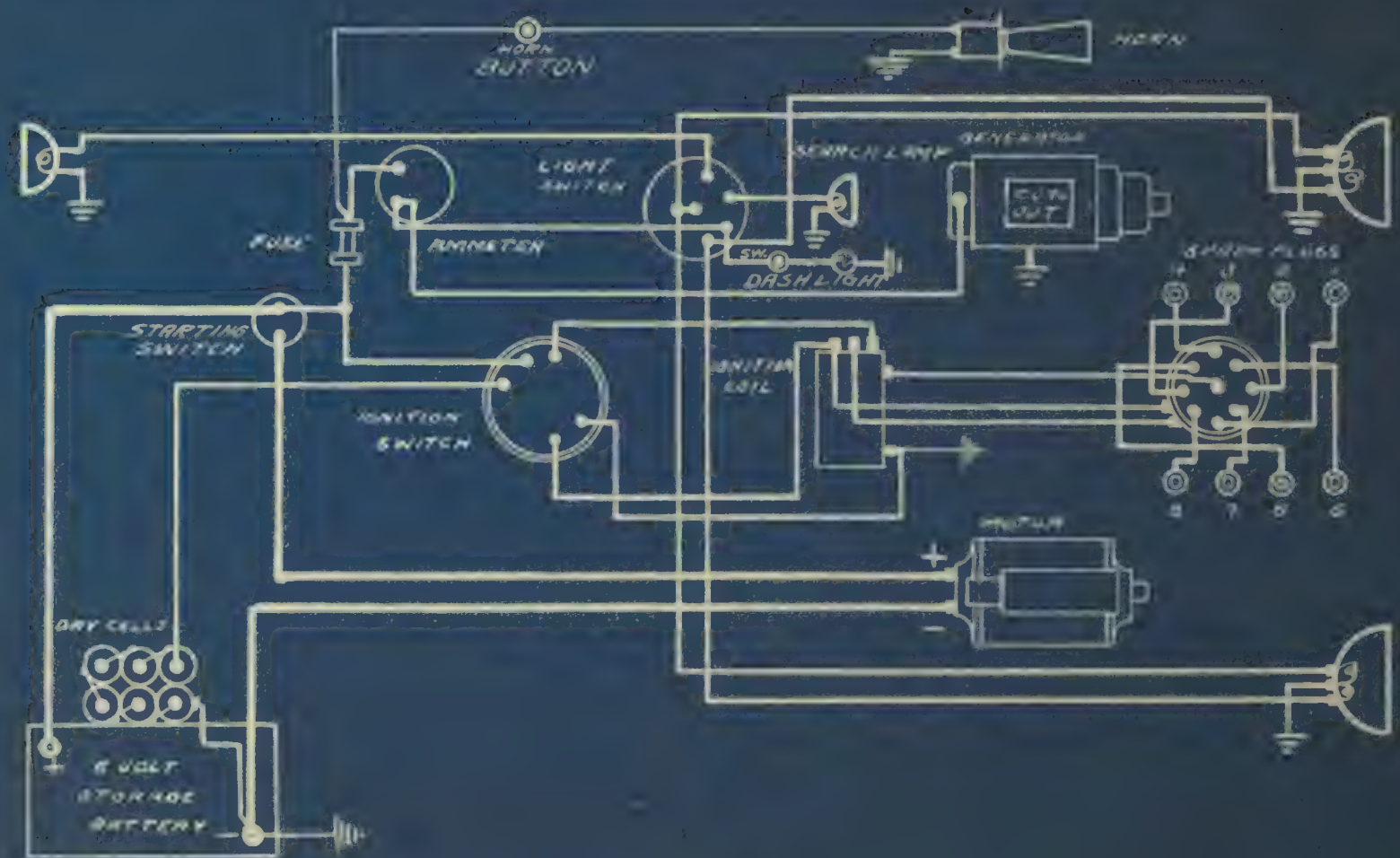


PEERLESS  
AUTOLITE SYSTEM

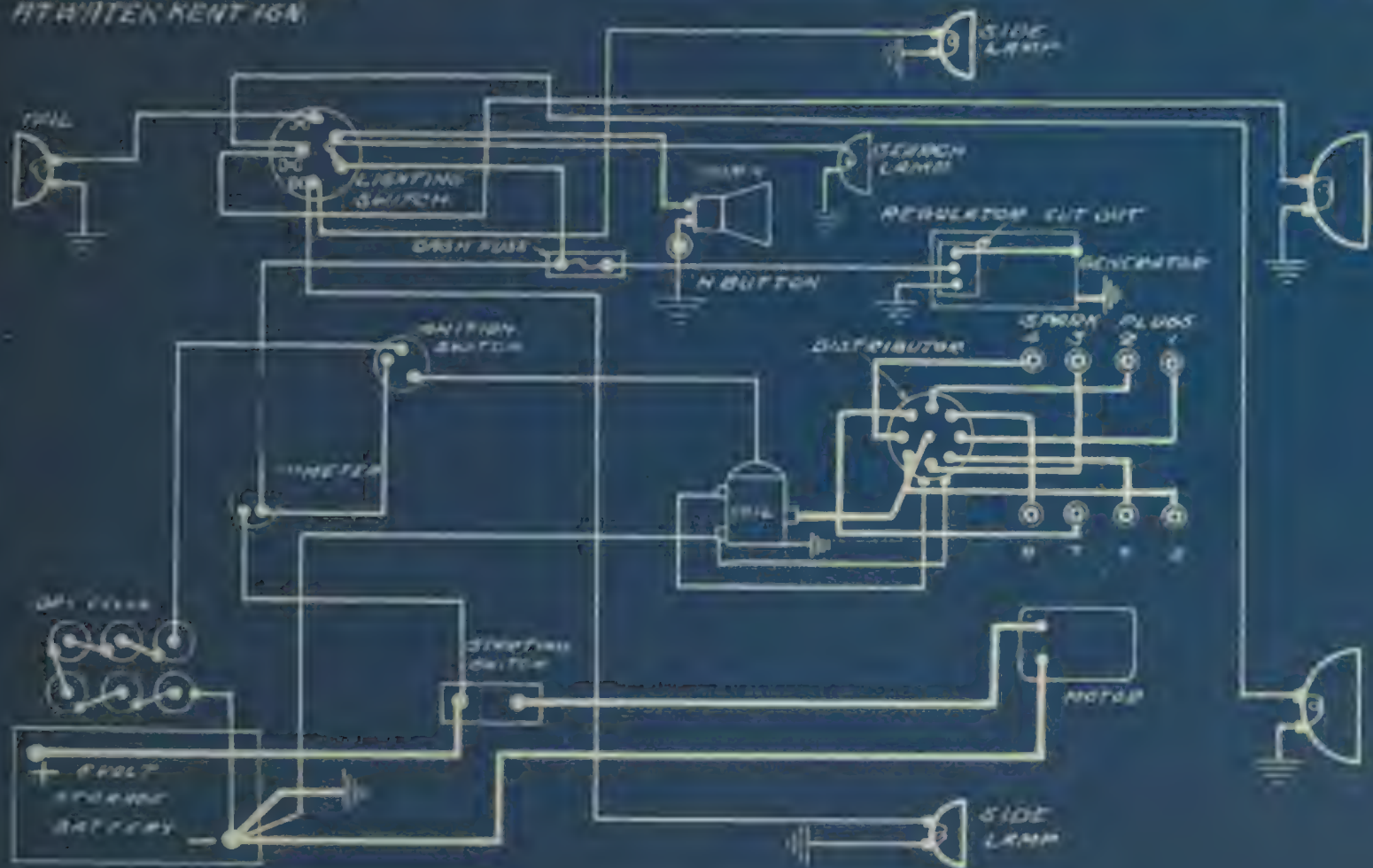
MODEL 56-2FF

1917-1918

WIRING DIAGRAM



**PEERLESS 1918-19-20 MODEL 56** FROM MERS BR 3859  
**RUTOLITE SYSTEM**  
 BY WHITE KENT 16N





## PIERCE-ARROW NESTINGHOUSE SYSTEM

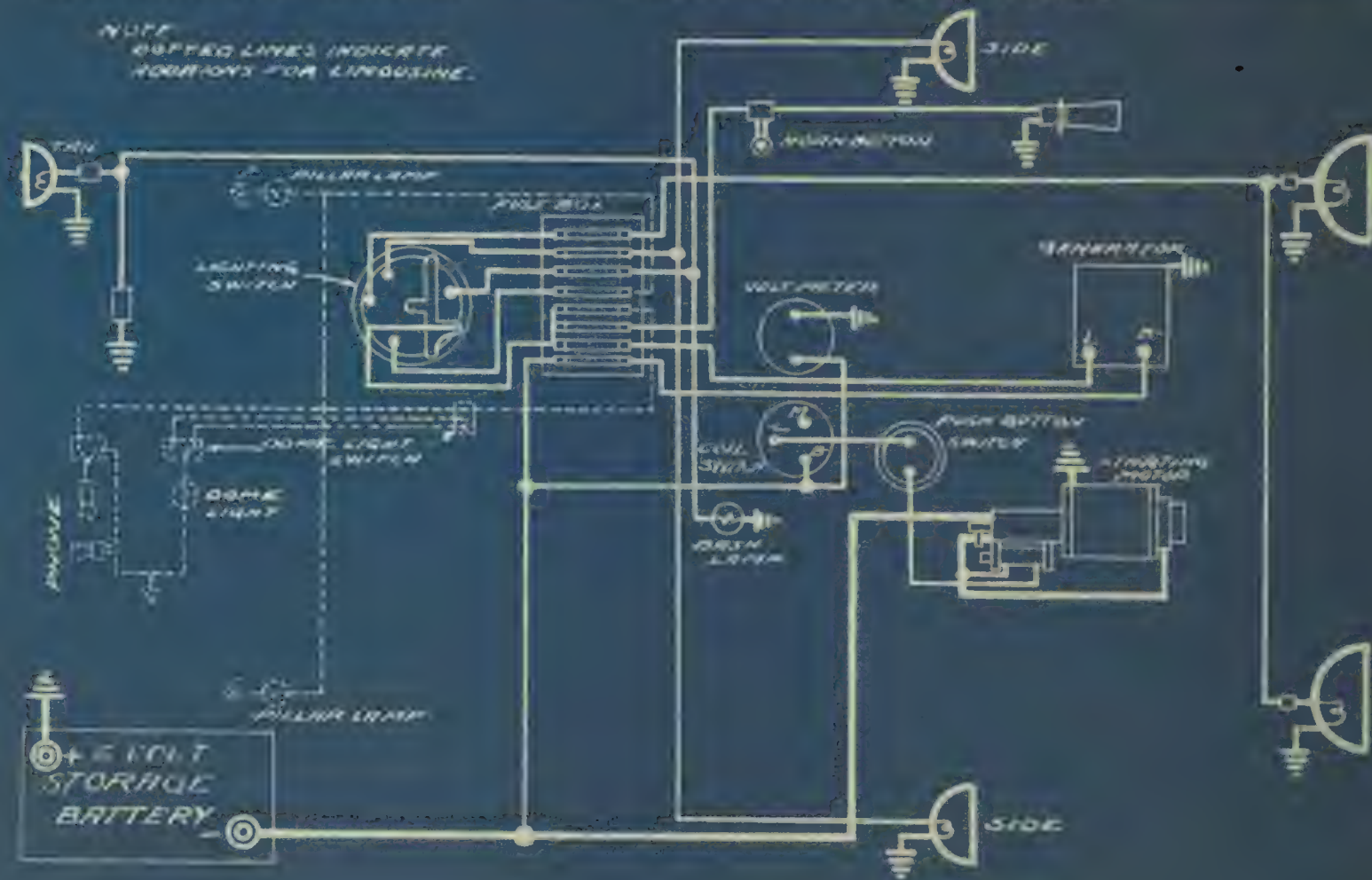
1914

38-C-2

FROM WEST ALFES 39-100

### LIMOUSINE AND TOURING CARS

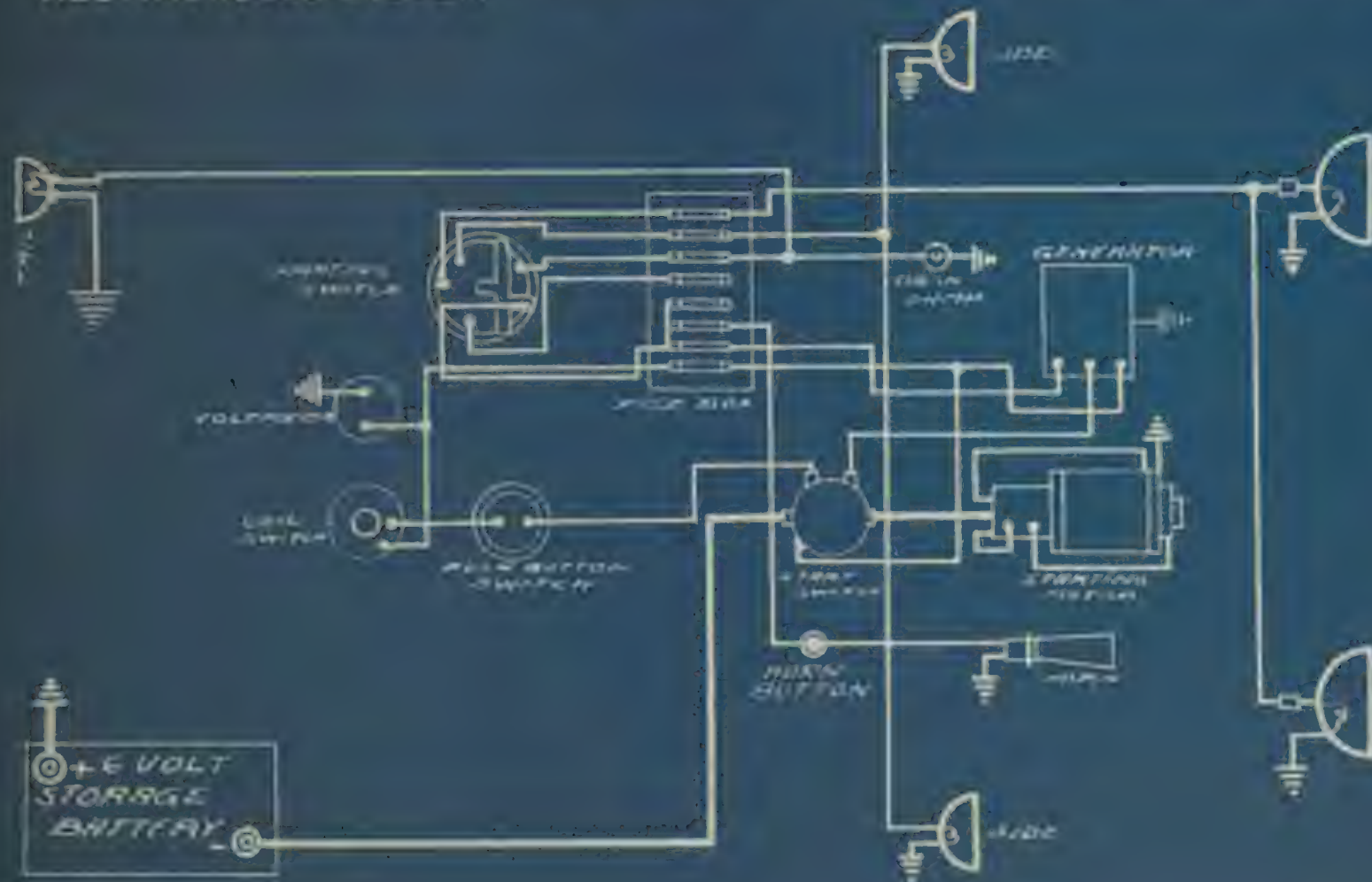
NOTES:  
DOTTED LINES INDICATE  
POSITIONS FOR LINGUINE



PIERCE-ARROW 1914-15  
 NESTINGHOUSE SYSTEM

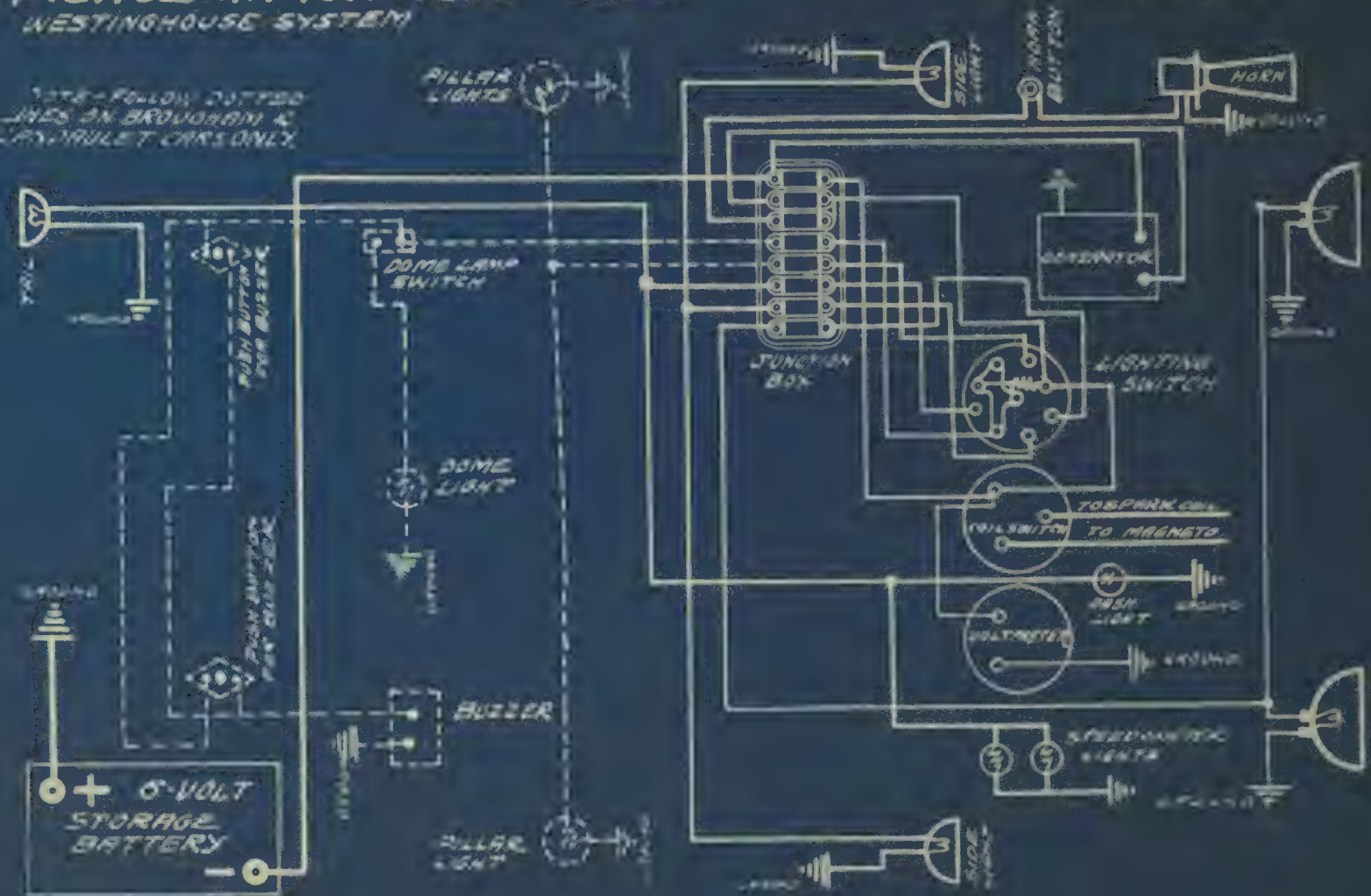
48-B

FROM WESTINGHOUSE

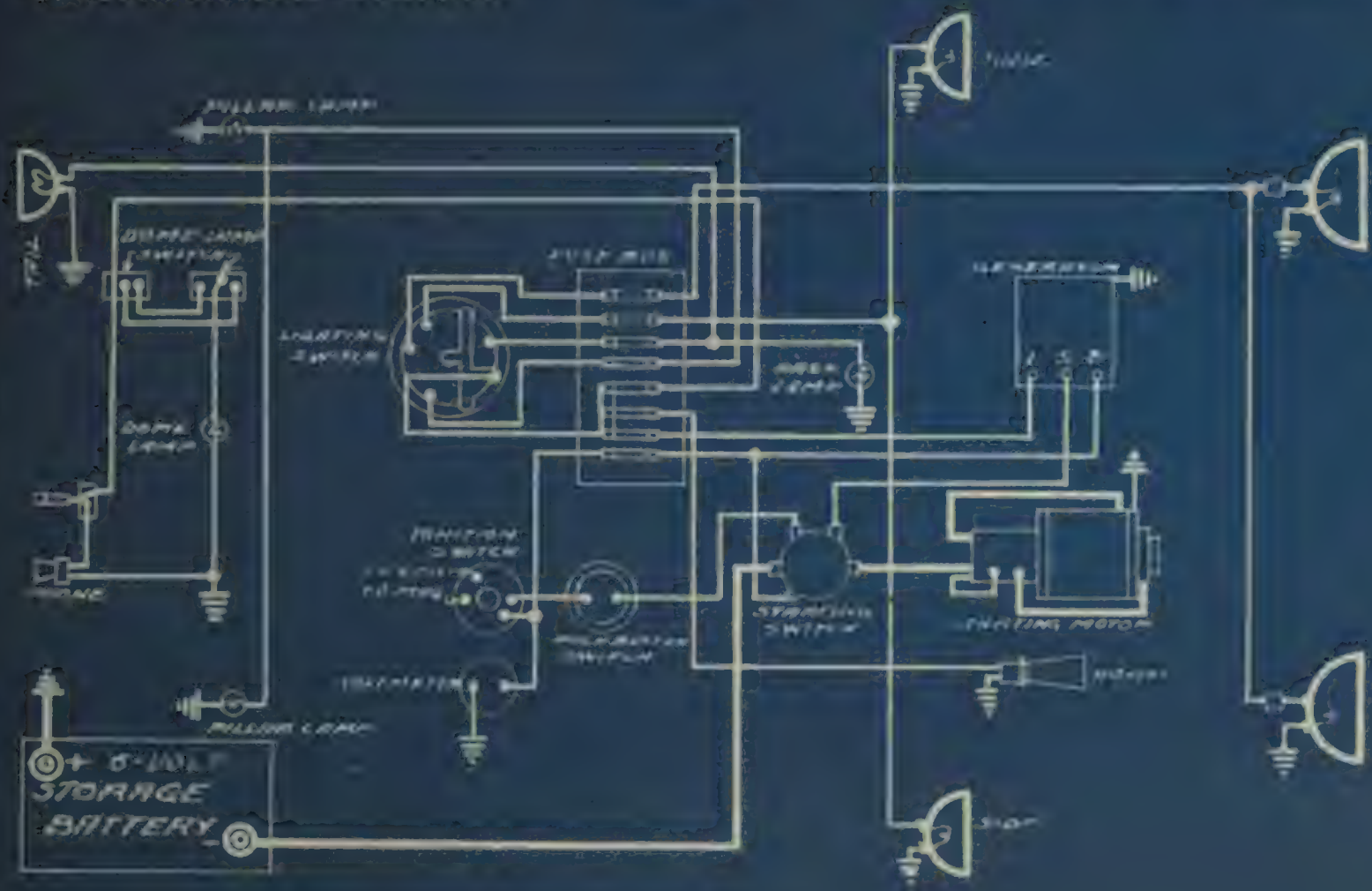


# PIERCE-ARROW 1915 "38-C" WESTINGHOUSE SYSTEM

NOTE—FOLLOW DOTTED LINES ON BROUHAIR & LORRAULET CARS ONLY



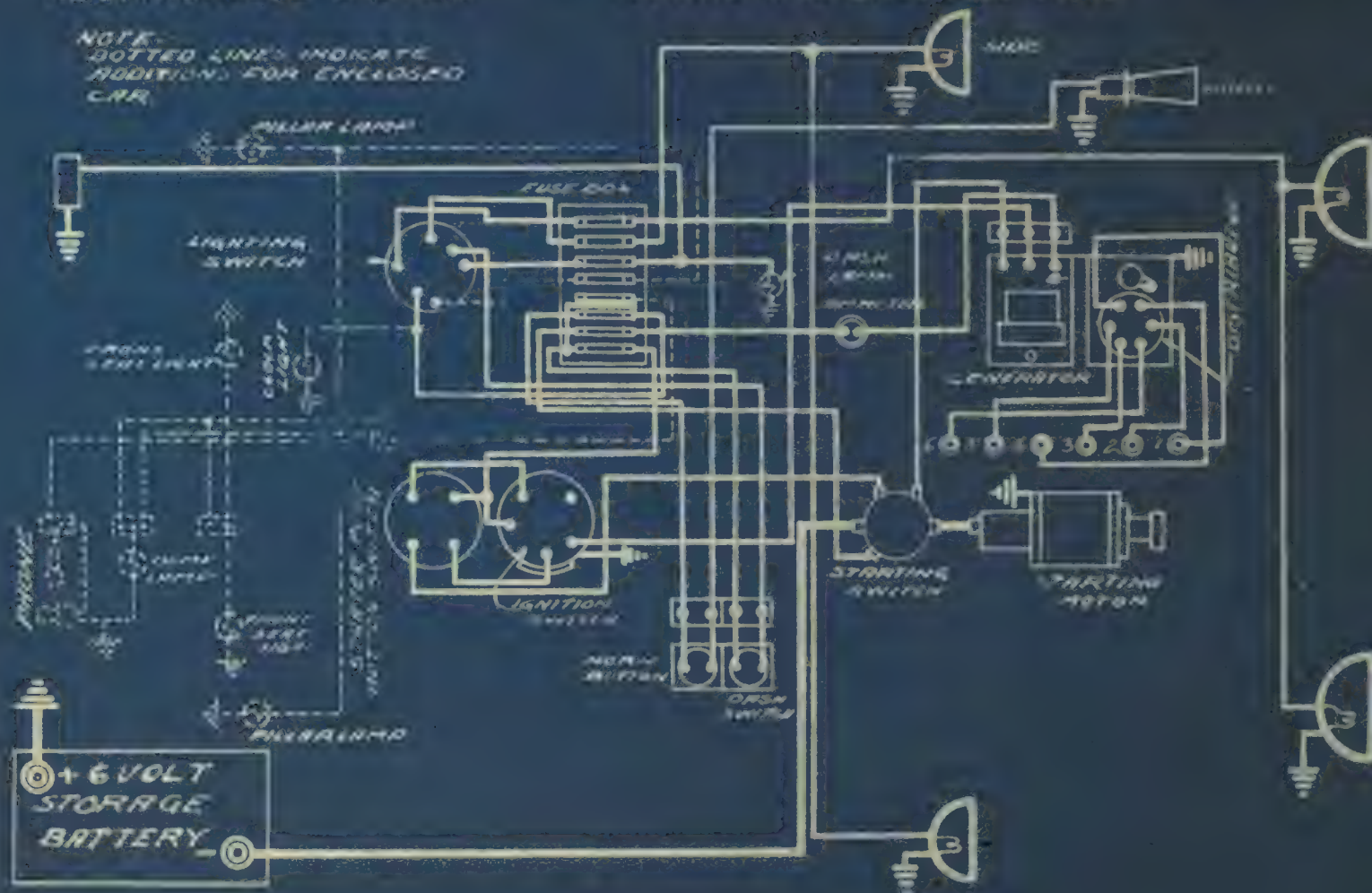




# PIERCE-ARROW 1916 WESTINGHOUSE SYSTEM

FROM WEST PLATES 97-341  
TOWNING AND ENCLOSED CARS

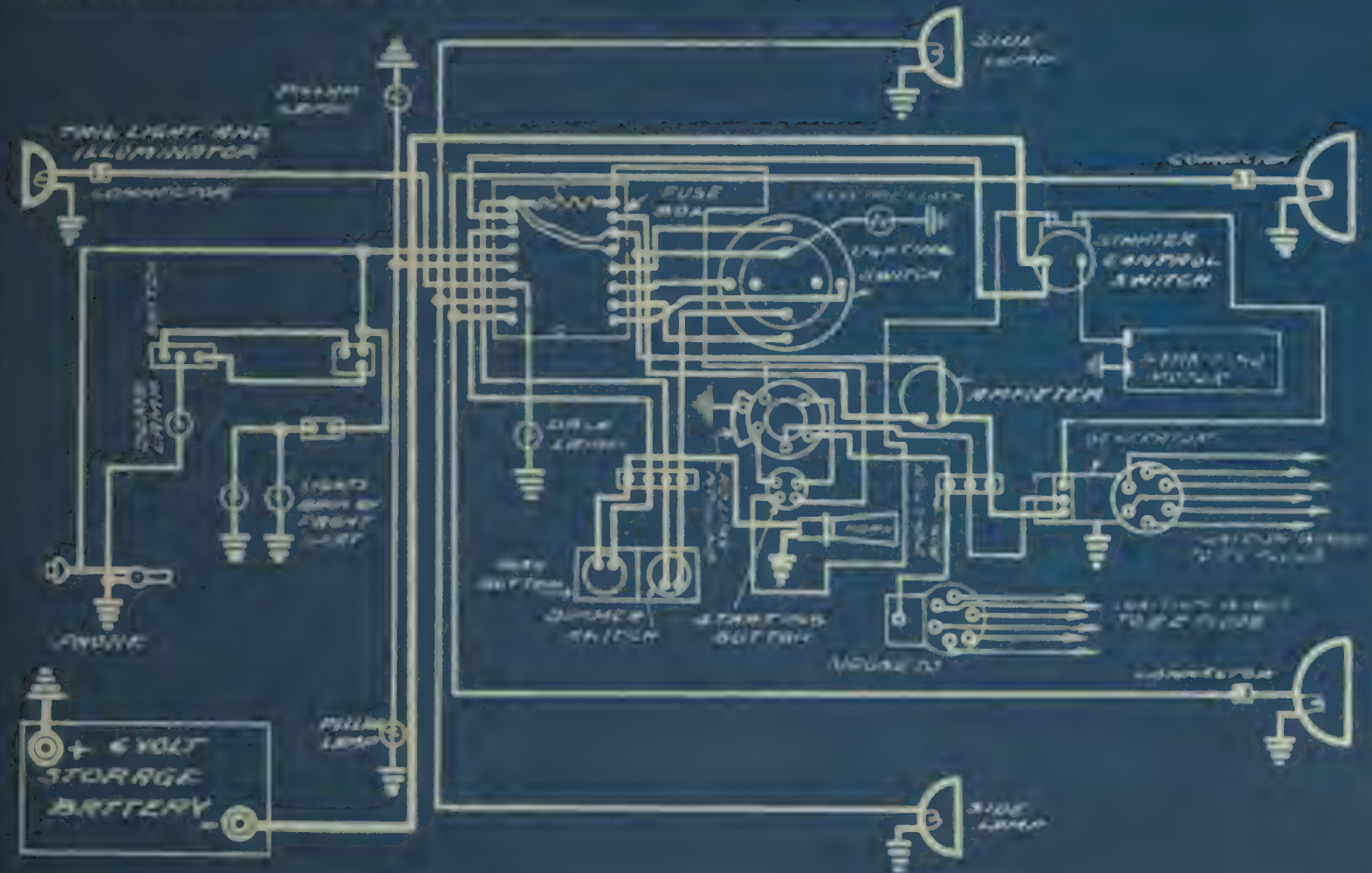
NOTE:  
DOTTED LINES INDICATE  
ADDITIONS FOR ENCLOSED  
CAR



PIERCE-ARROW 1917-18  
WESTINGHOUSE SYSTEM

38-48-66

FROM MR. N. F. B. V.

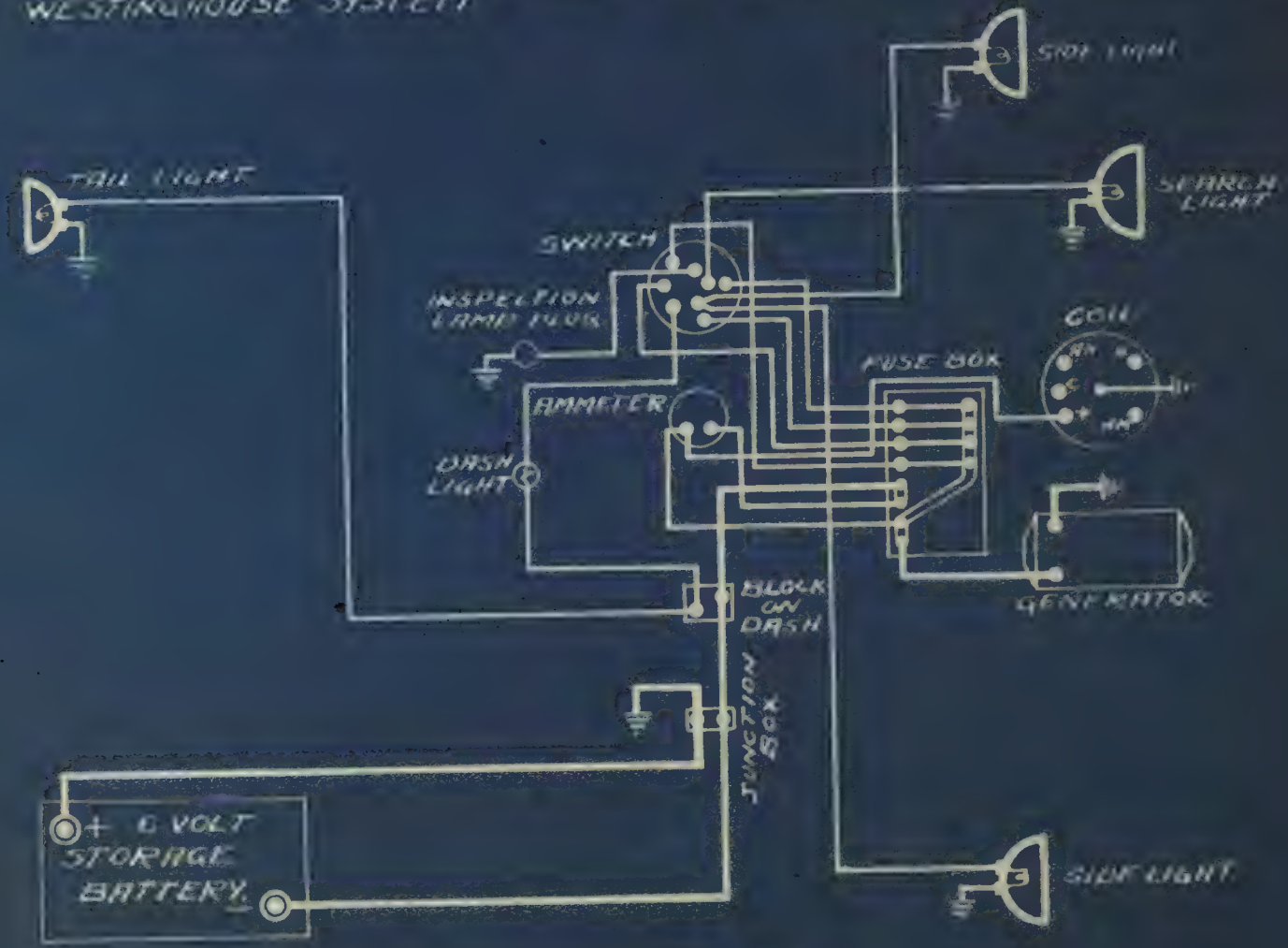


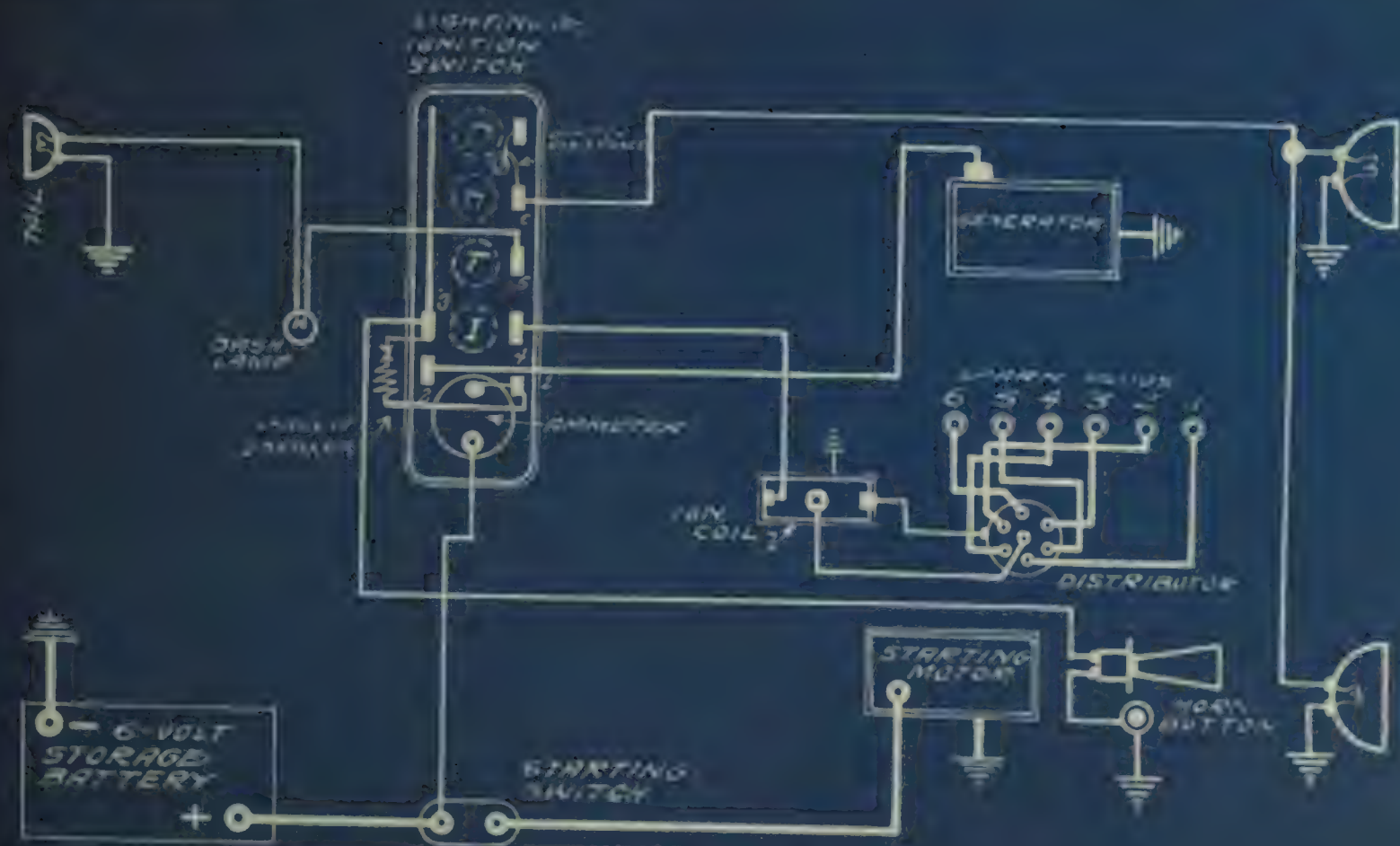


# PIERCE-ARROW TWO-TON TRUCK

## WESTINGHOUSE SYSTEM

FROM PIERCE HANDBOOK







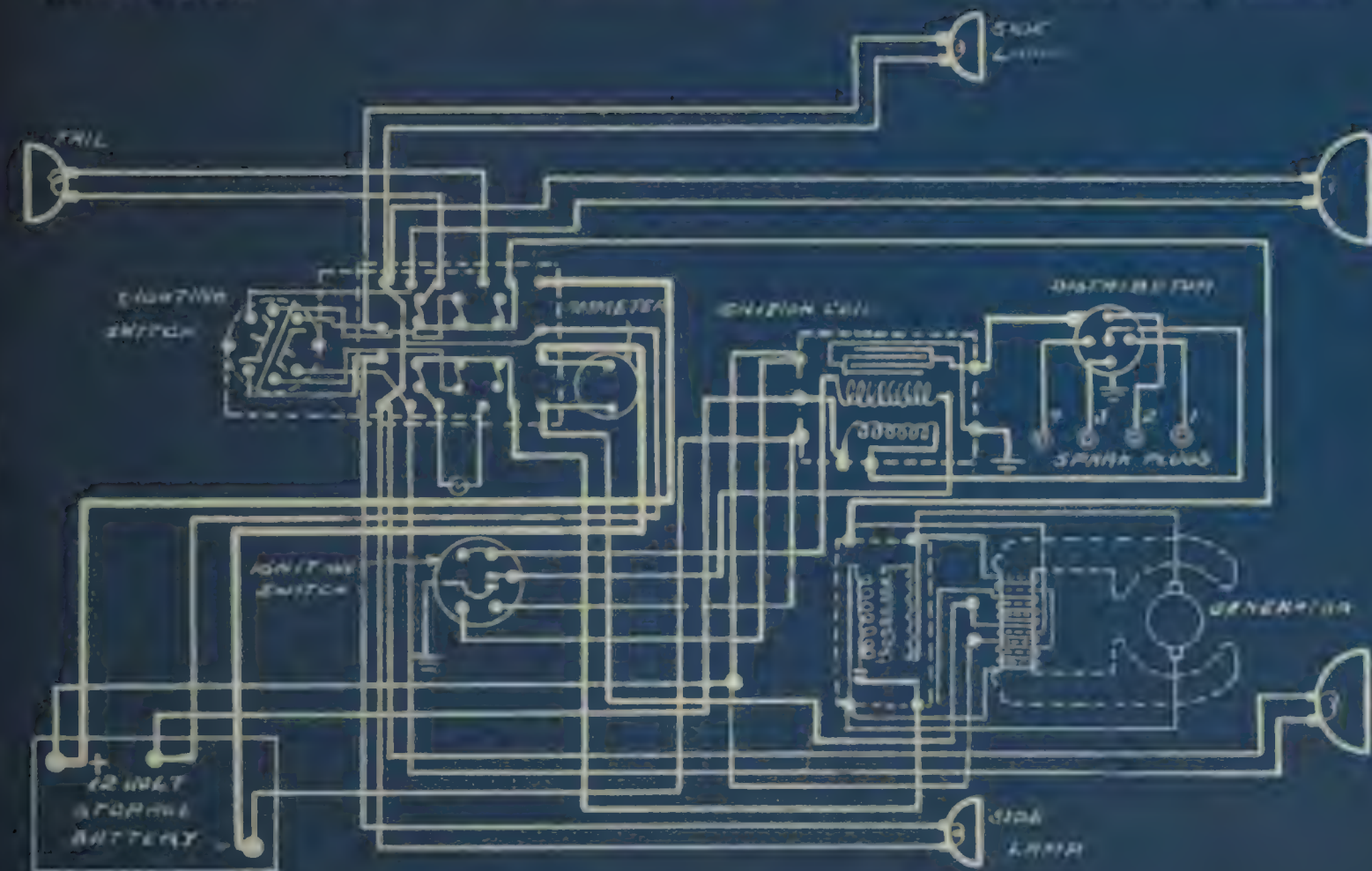






# PREMIER 1915 MODEL "MJ"

WIRE SYSTEM

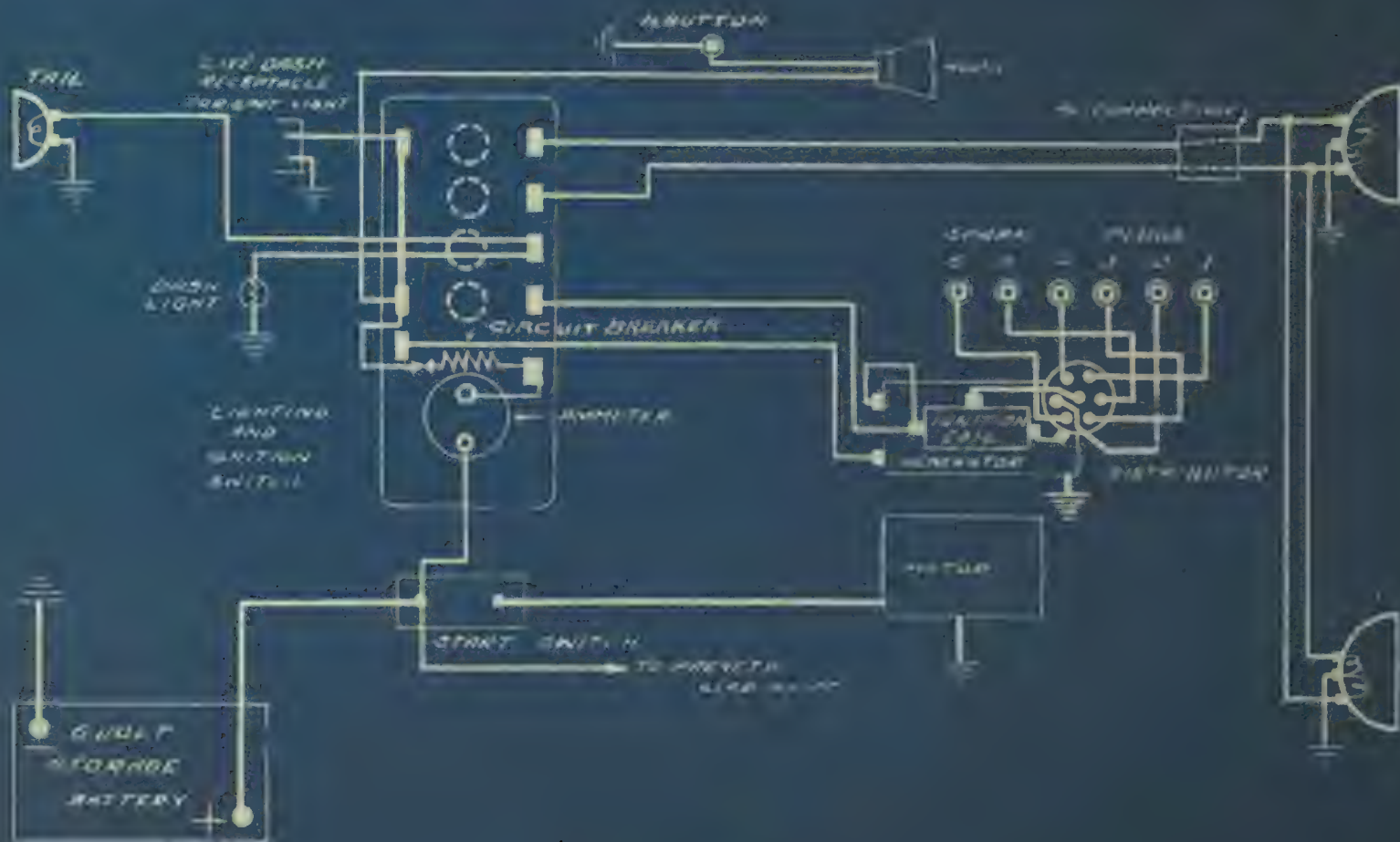




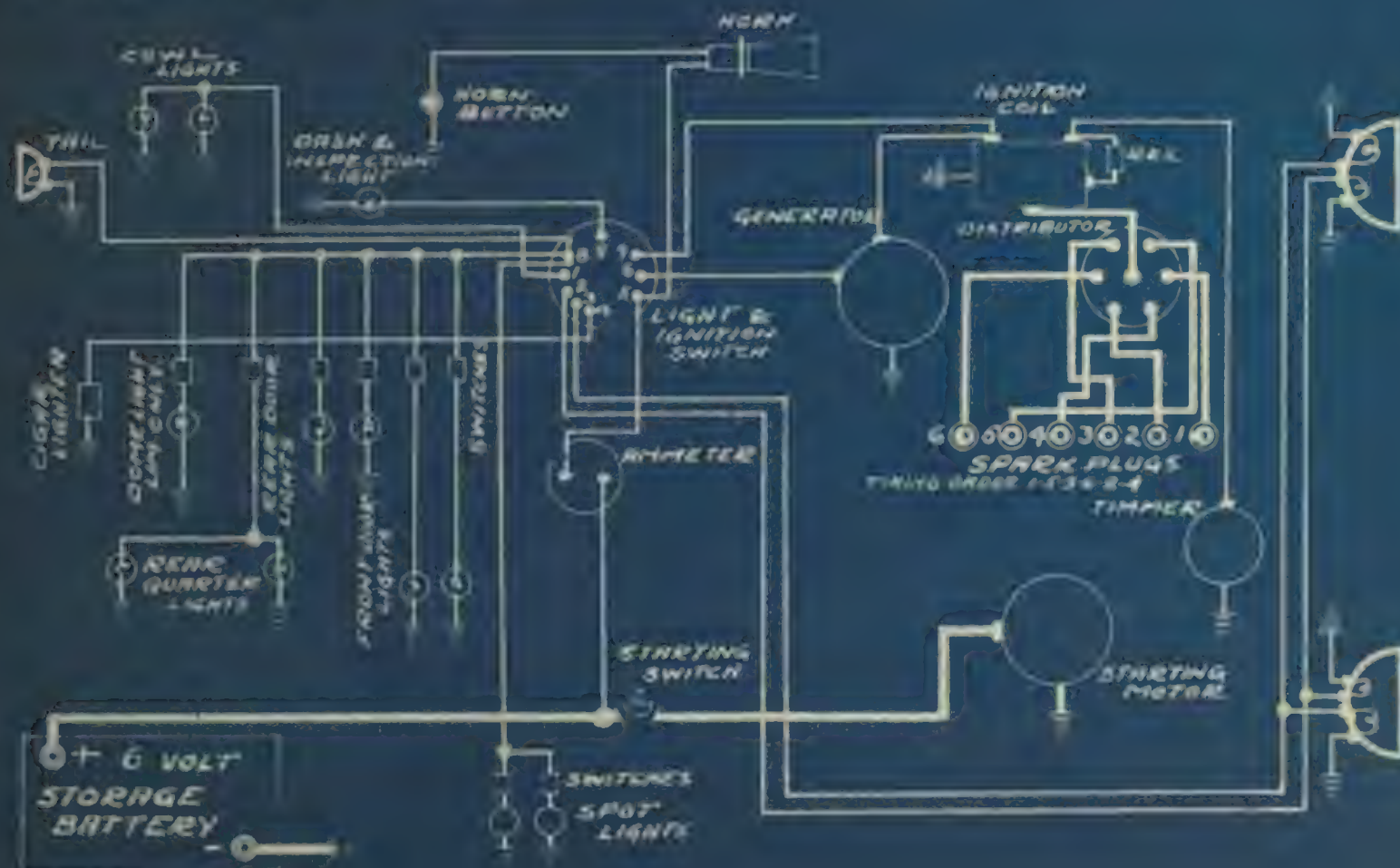
# PREMIER 1917-18-19 6-B & 6-C

DELCO SYSTEM

FRONT WIPERS, AM CH685



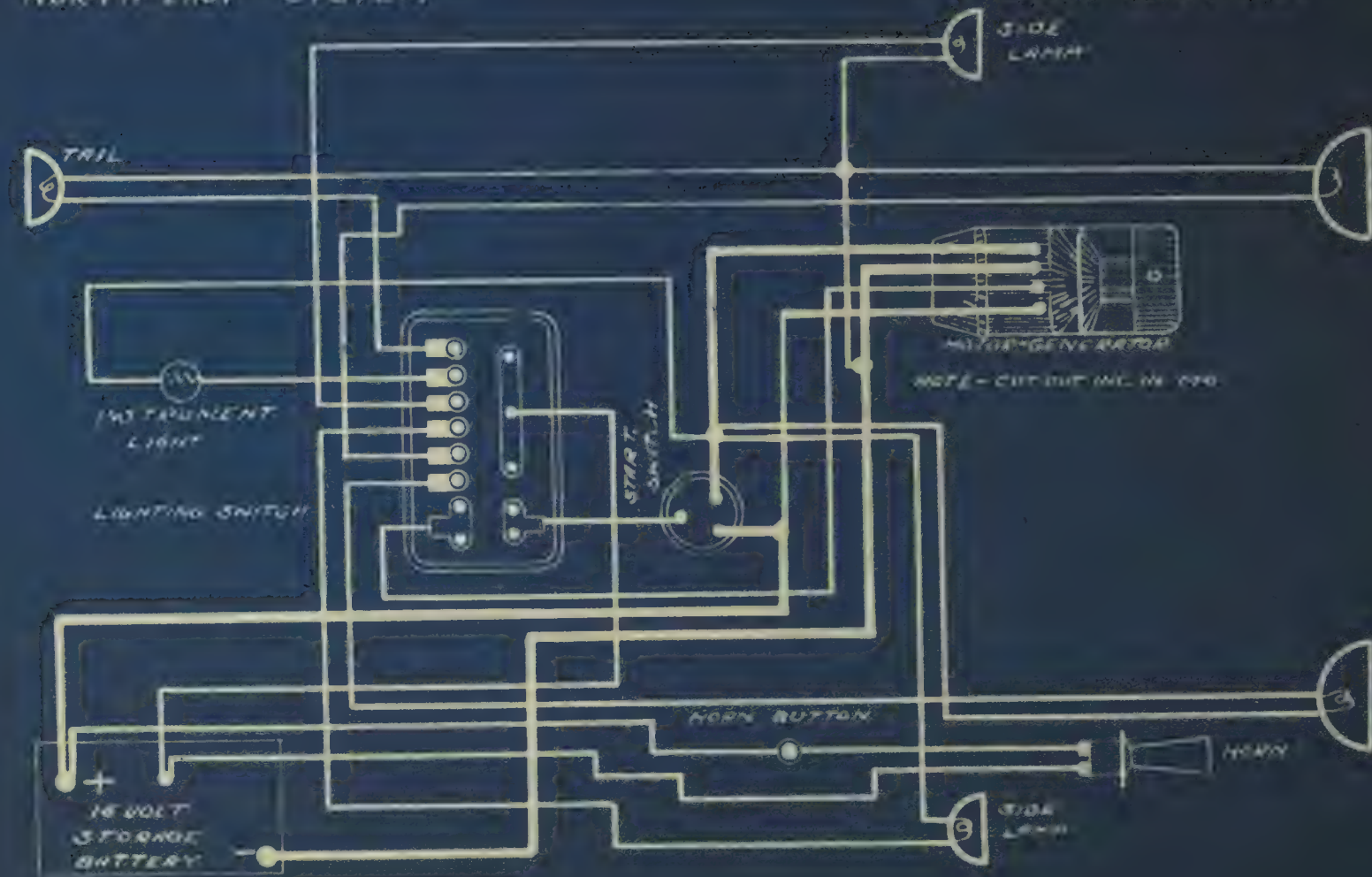
## FACULTY FUNDING OF 1983-1984



# PULLMAN 1913

## NORTH EAST SYSTEM

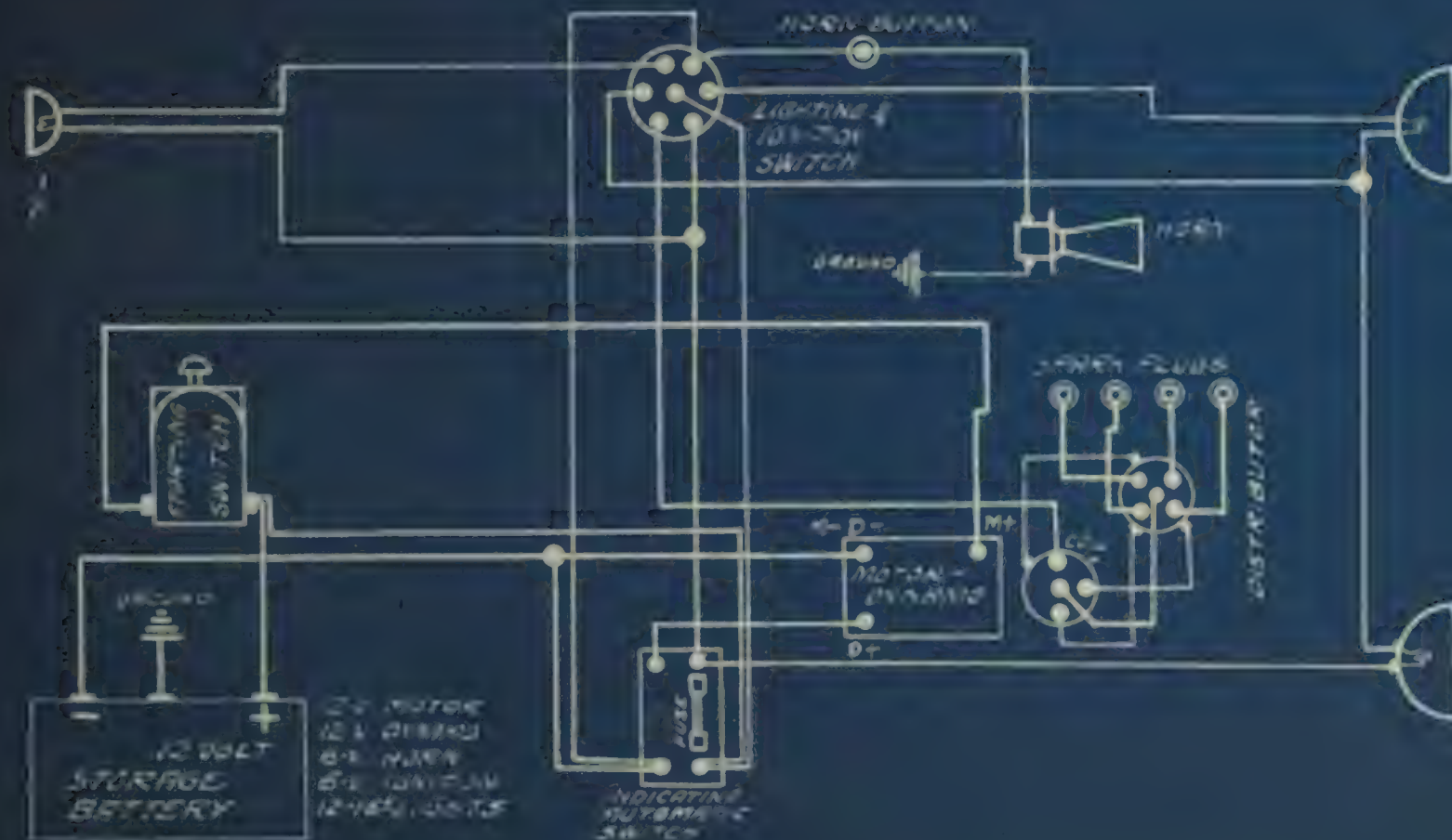
FROM NE PLATE 130





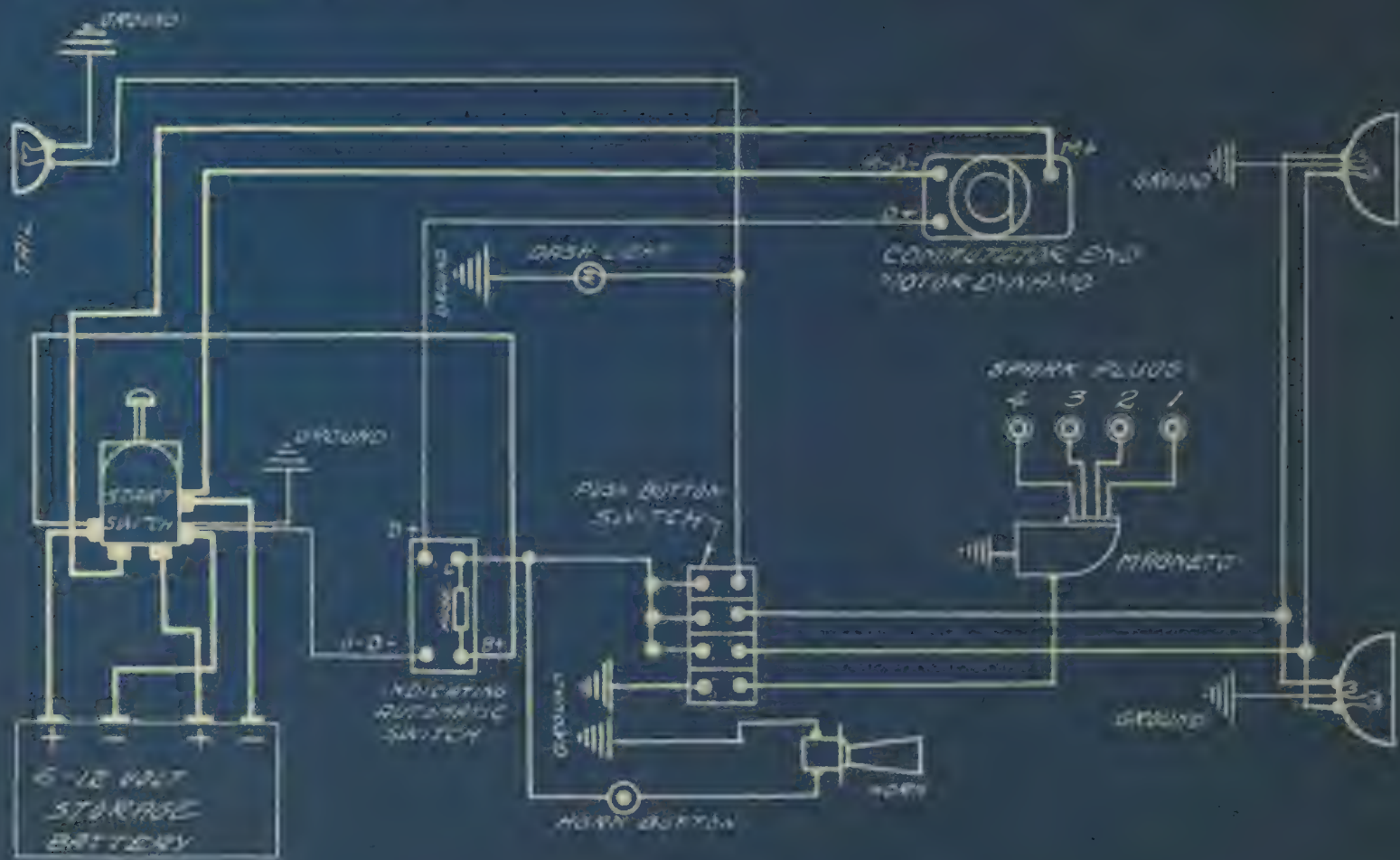
# PULLMAN 1915 SPLITDORF-APELOO SYSTEM

FROM SPLIT-AP MANUAL



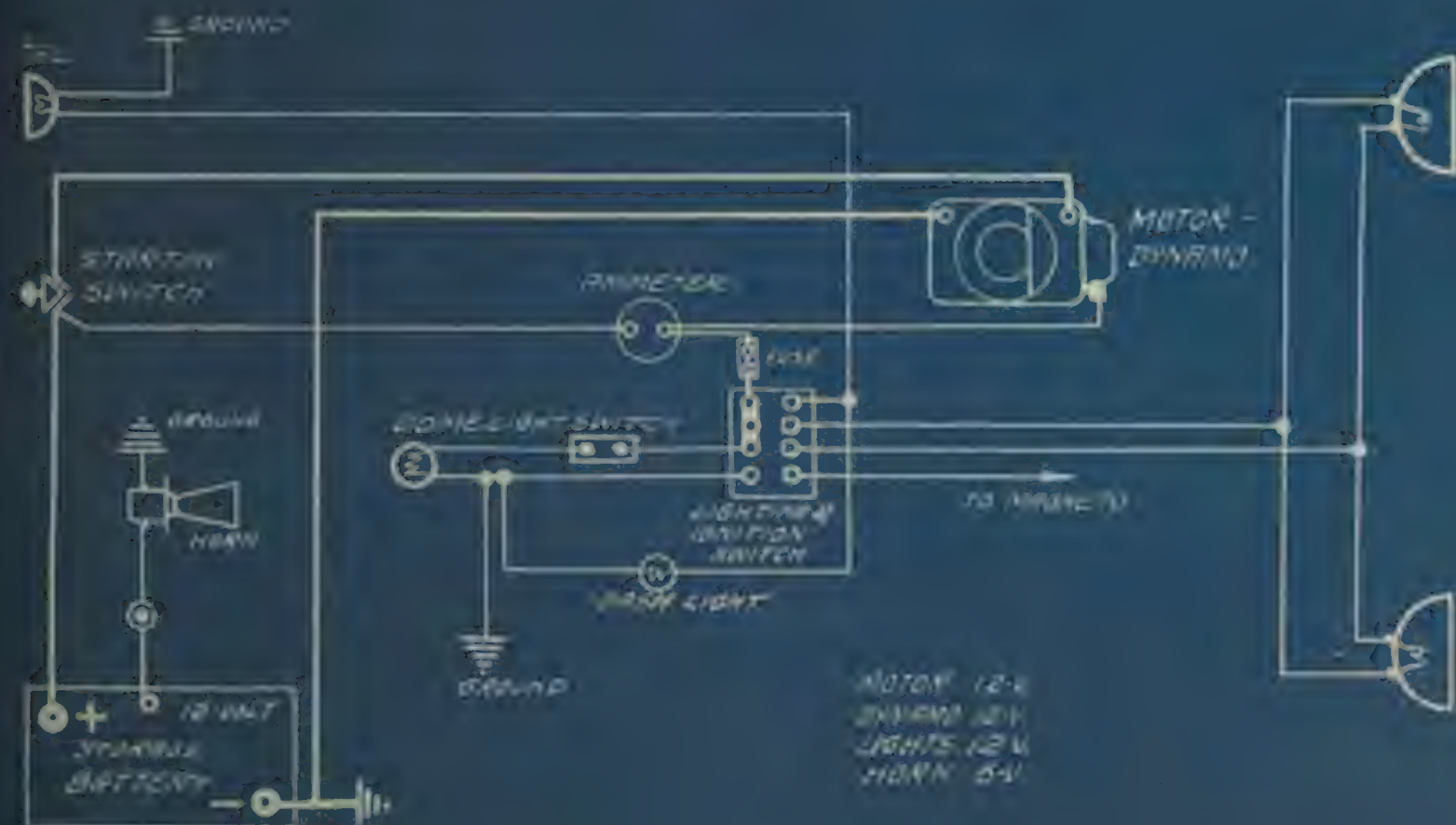
# PULLMAN 1916 SPLITDORF-APELCO SYSTEM

FRONT-PLATE MANUAL



PULLMAN 1946  
FLITDORF-BECCO STATION

54247 *Scutigerella* *Scutigerella*

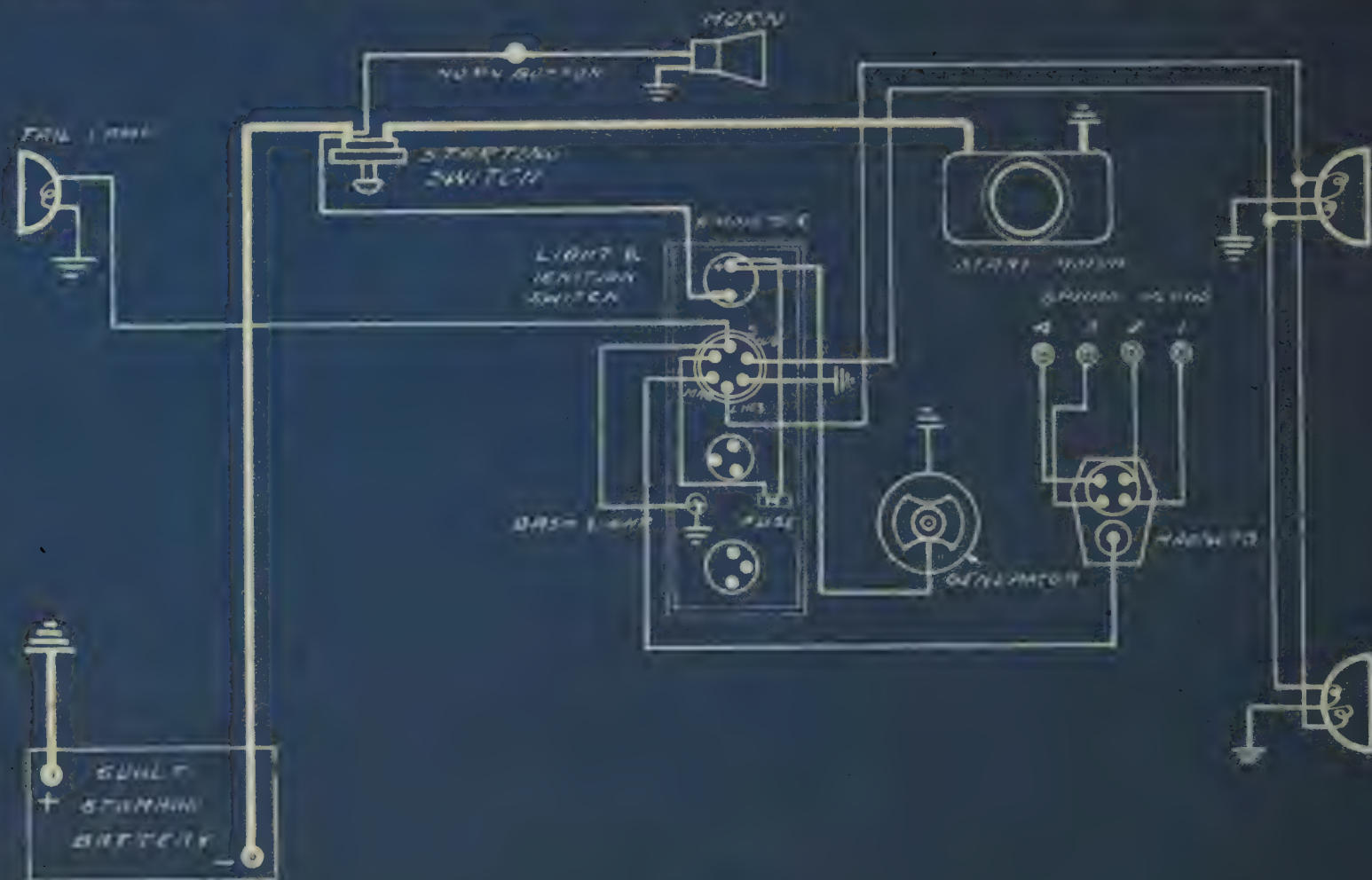




# PULLMAN MODEL-434 1917

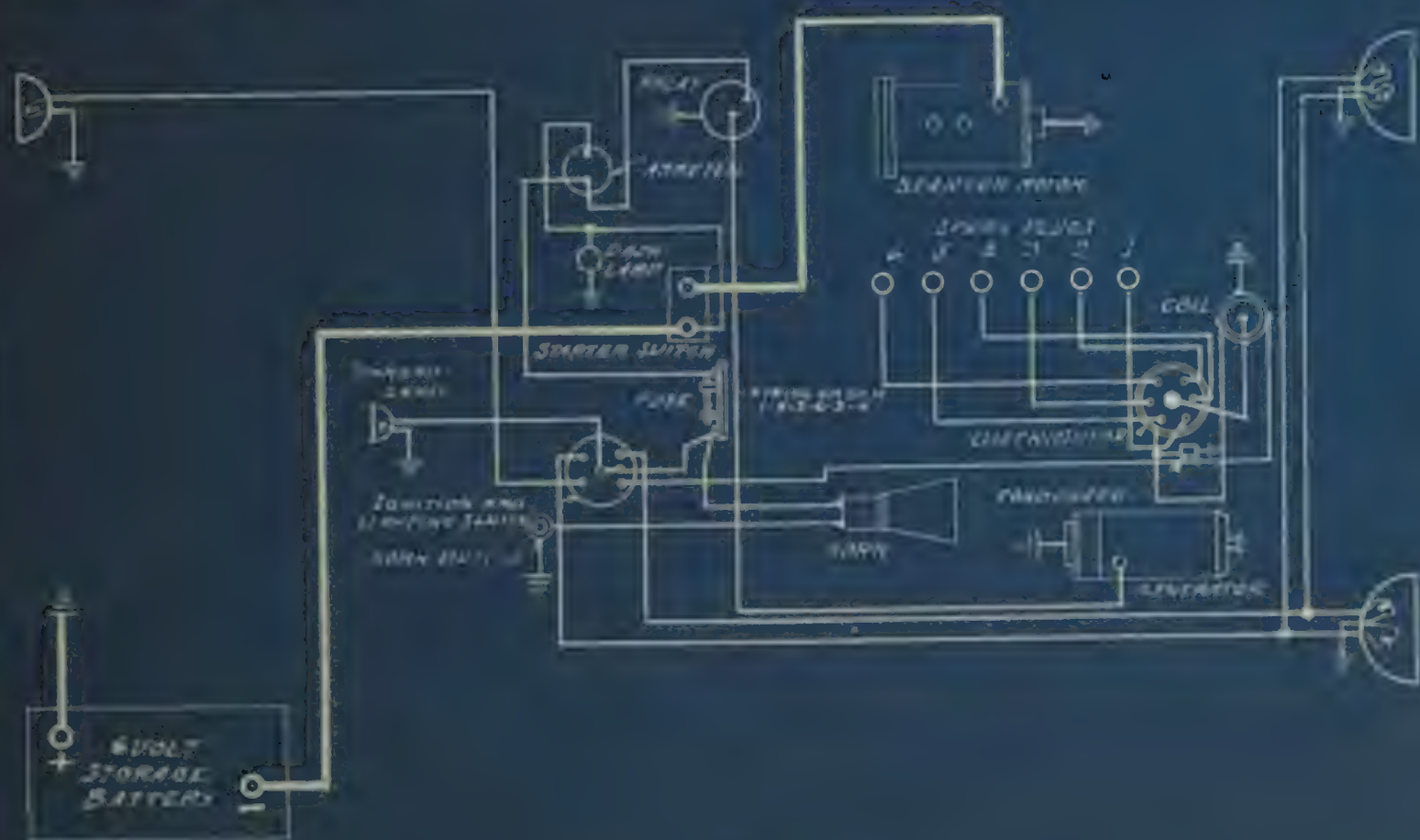
24 TROUBLE SHOOTING

FROM PULLMAN PLATE



# "R & V" KNIGHT MODEL "R" 1920

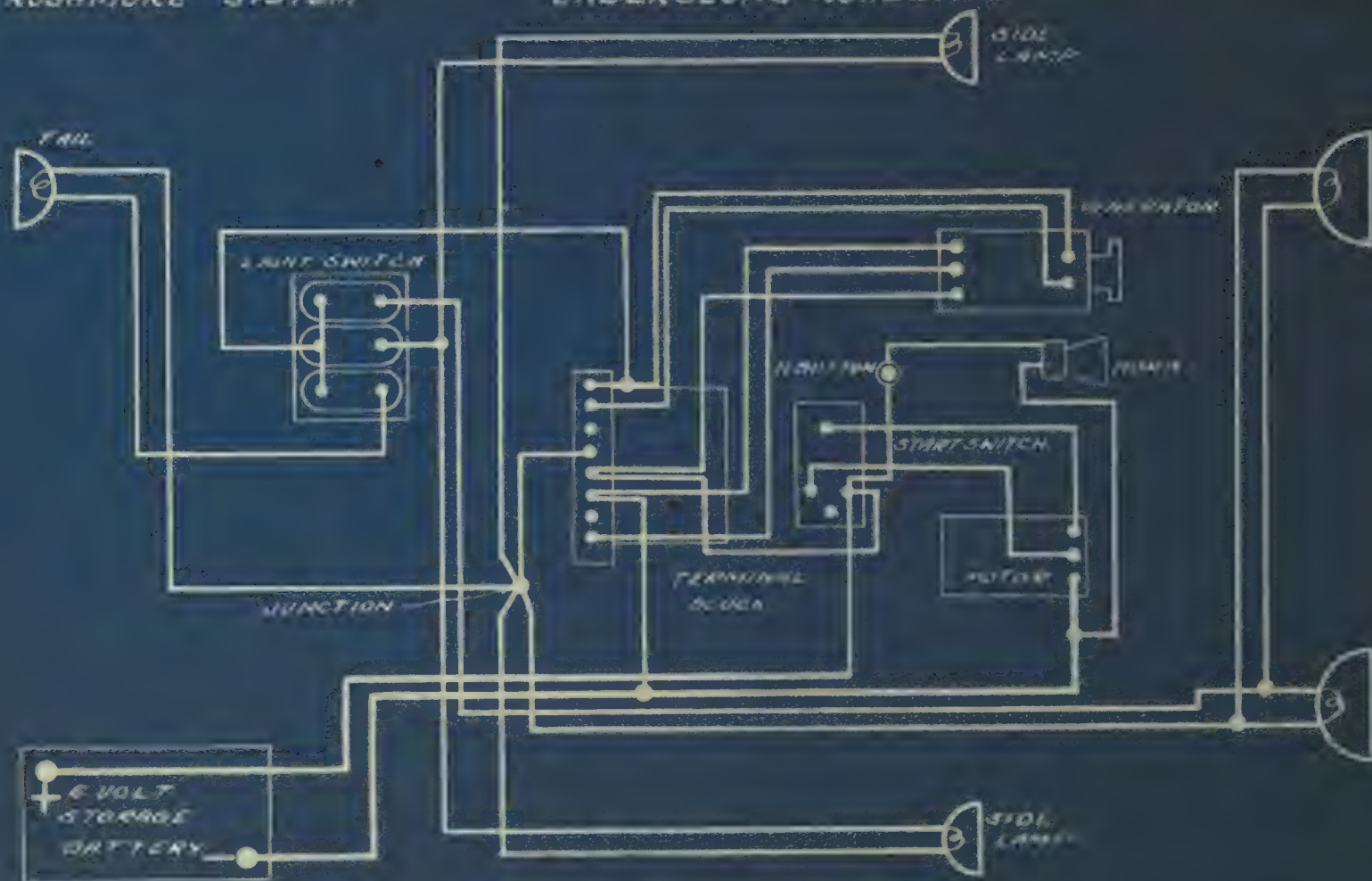
WAGNER SYSTEM



REGAL 1913-14  
RUSHMORE SYSTEM

"N"  
UNDERSLUNG ROADSTER

FROM MFRS SKETCH

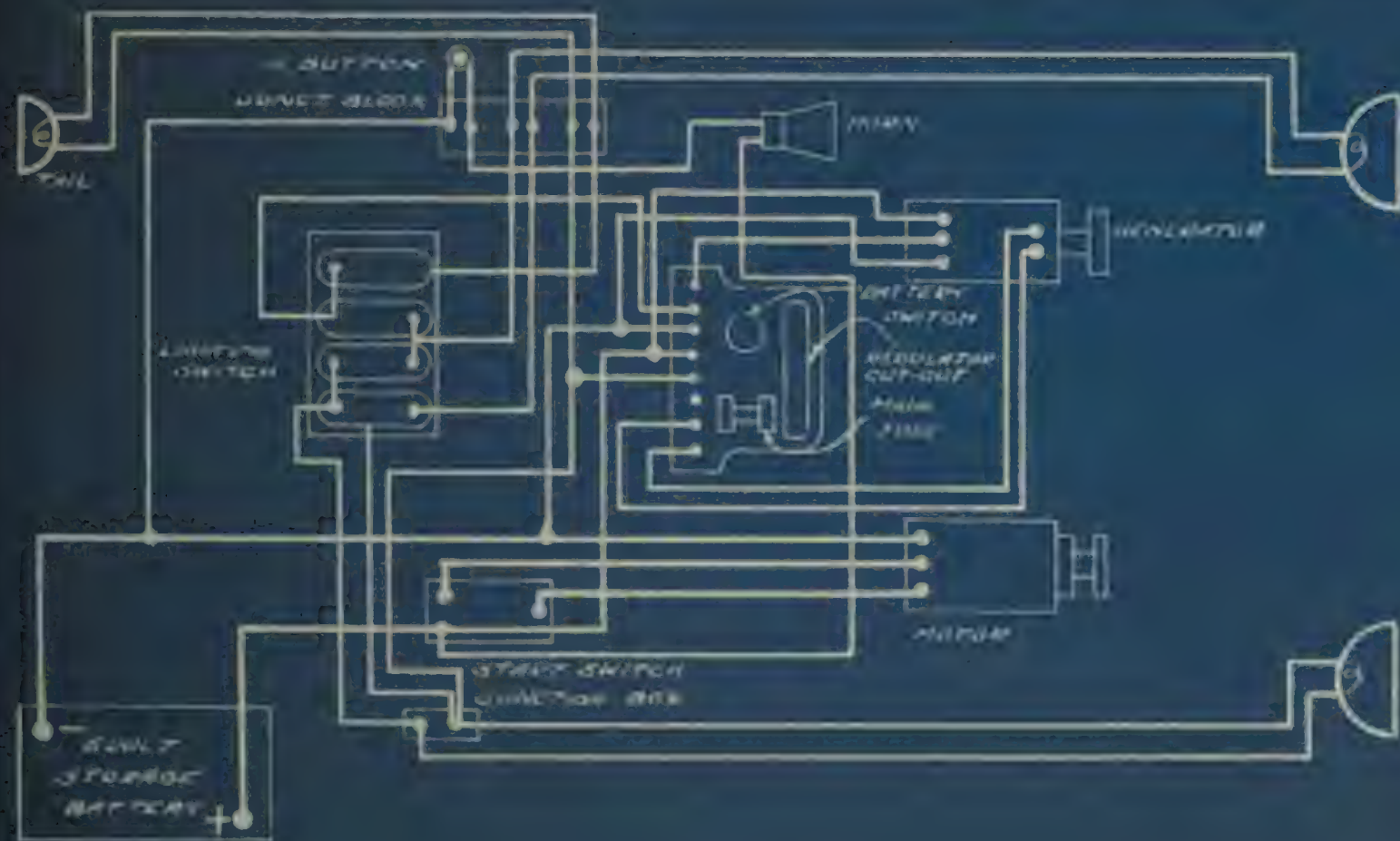




# REGAL 1914 MODEL "C"

## RUSHMORE SYSTEM

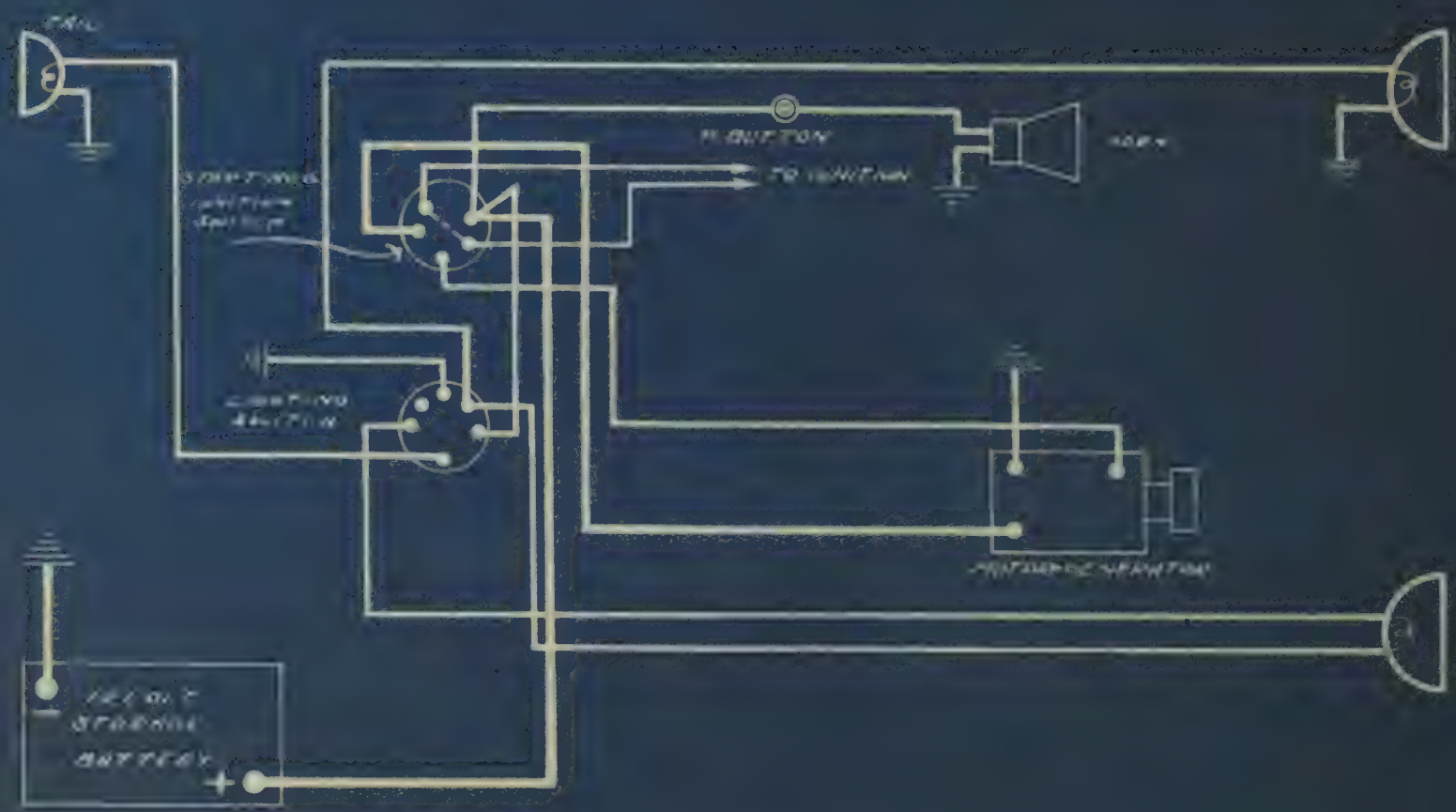
FROM MERE SKETCH.



# REGAL 1915-16 DYNETO SYSTEM

"E"

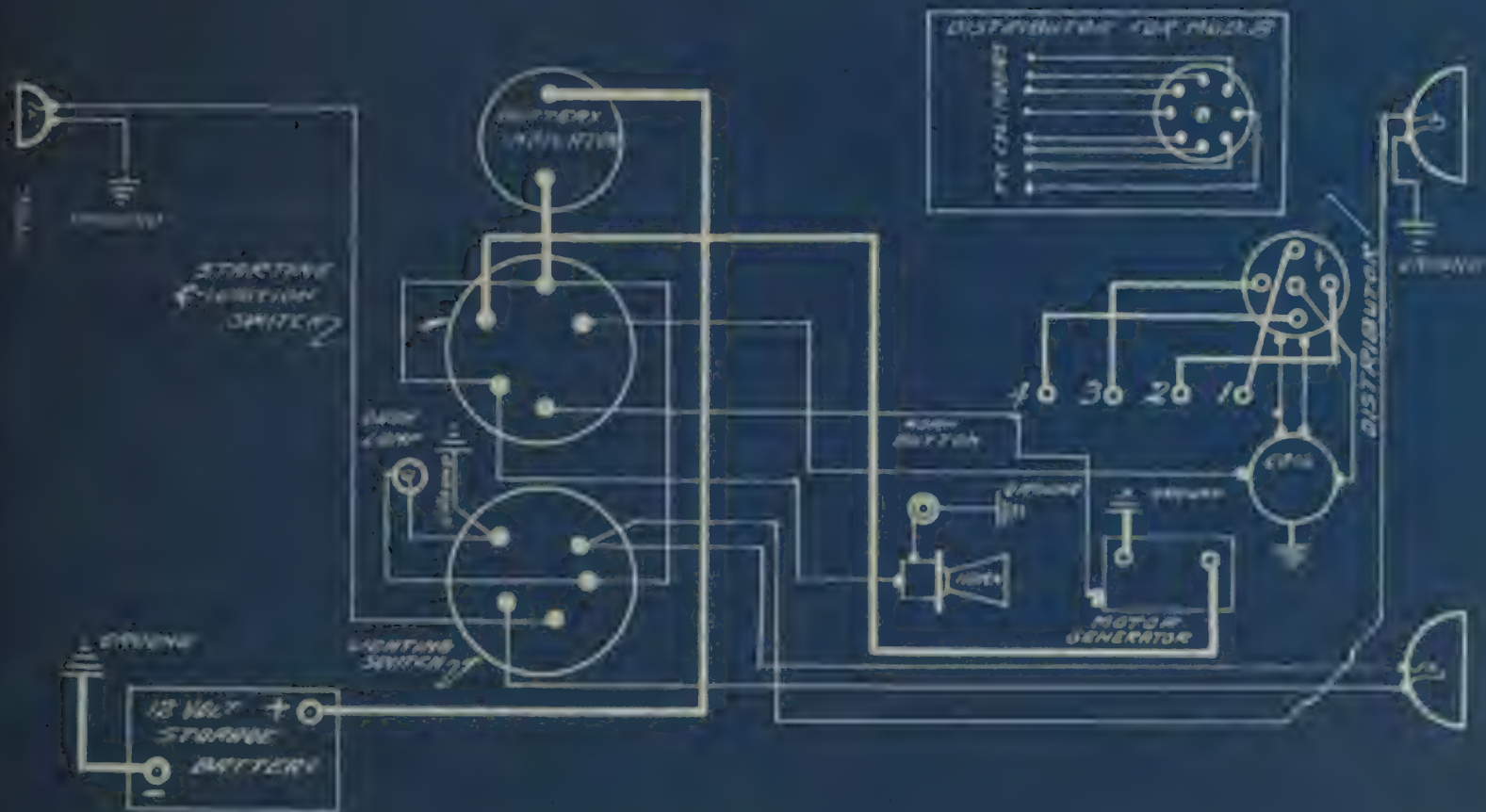
FROM MFRS. SKETCH



Patented by National Co.  
Manufactured in U.S.A.

REGAL - 1915-1916-1917 4 & 8  
 OWNETS & CONNECTICUT SYSTEMS COMBINED

FROM MARS OF EE 400

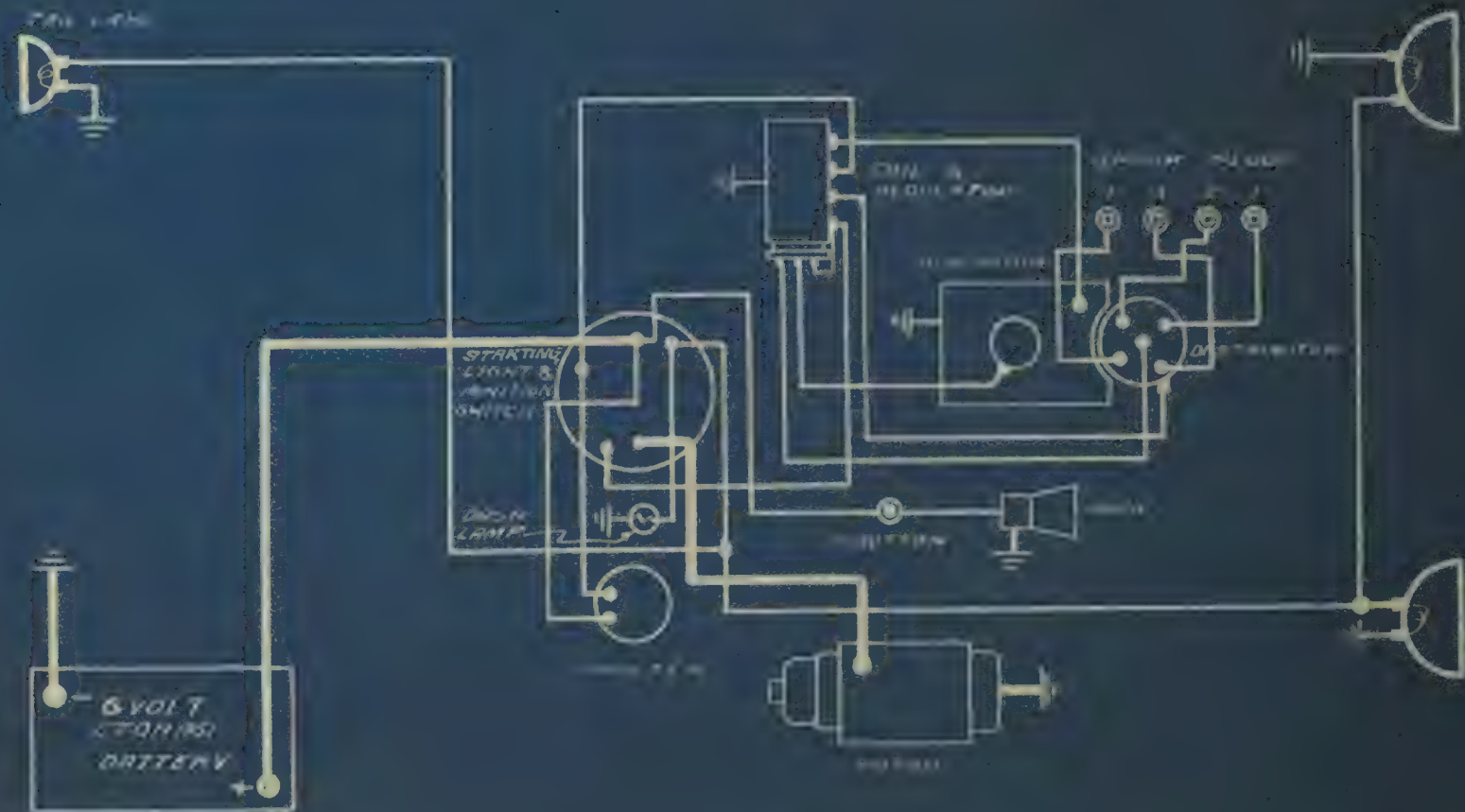




# REGAL MODEL "J" 1917

HEINZ SYSTEM USED IN PLACE OF 1917

WINDING MOTOR 2.17



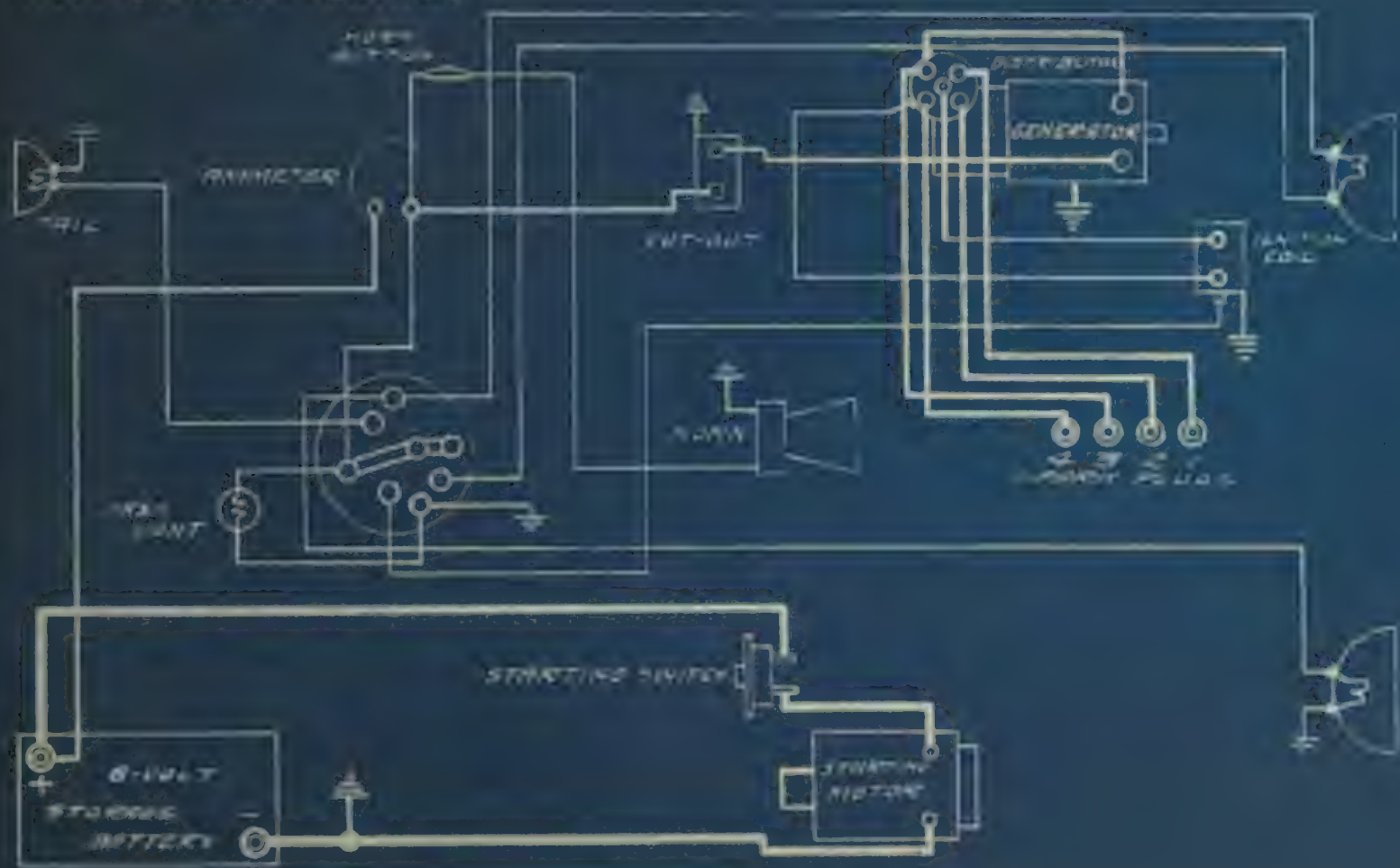
# REGAL 1917-18

## AUTOLITE SYSTEM

### STARTER-KENT IGNITION

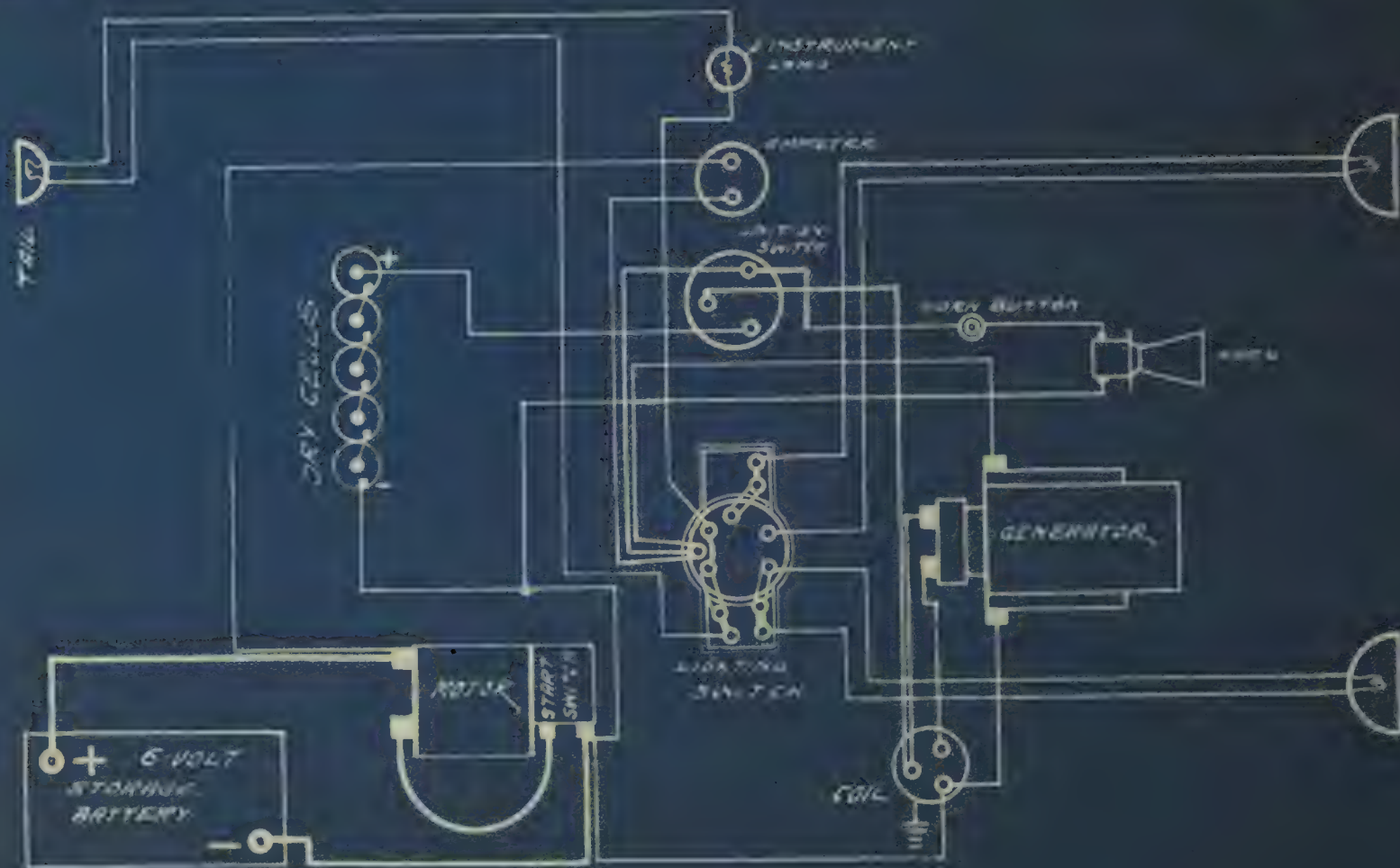
1-J

FROM REGAL 1917-18



# REO MODEL "R" 1914 REMY SYSTEM

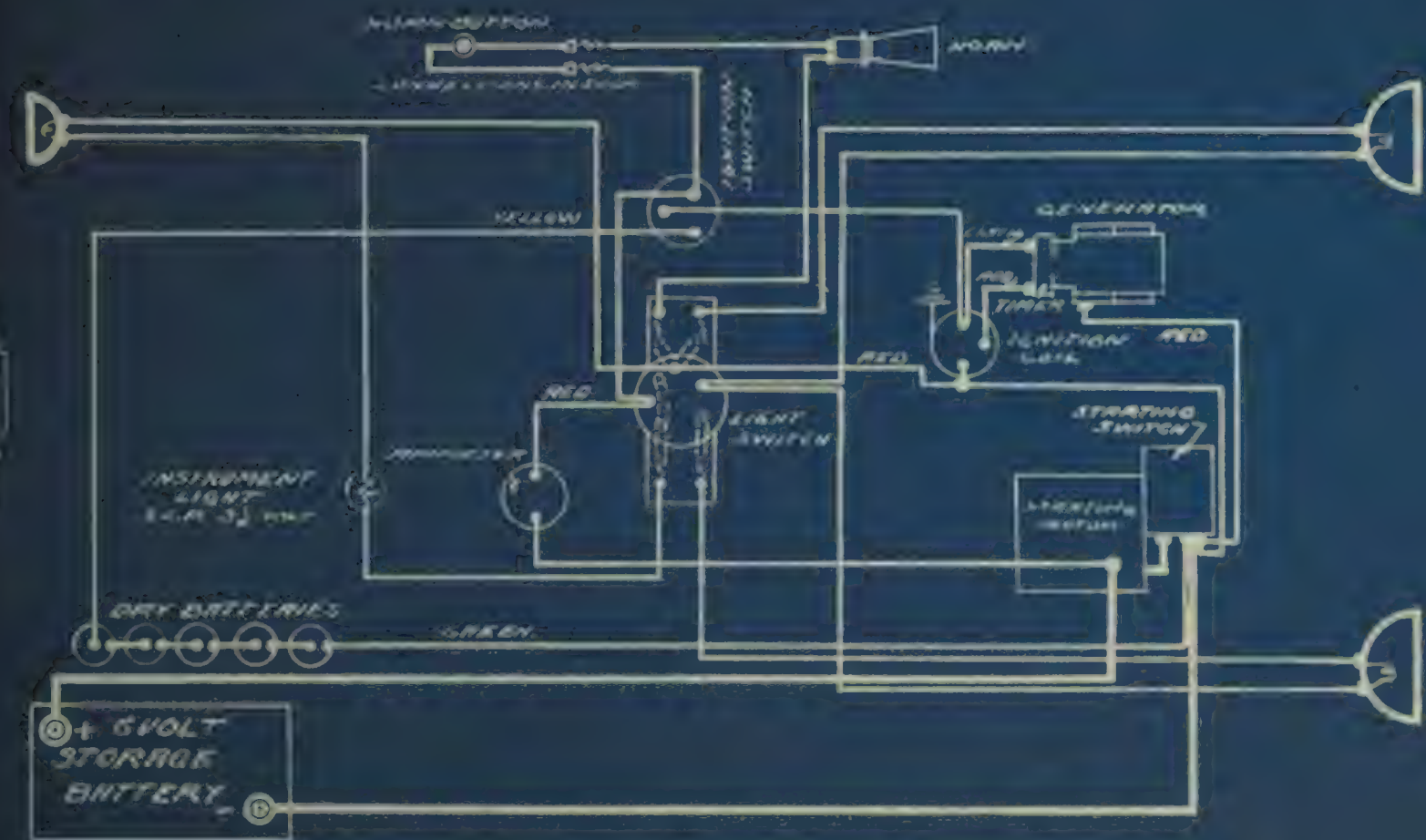
FROM MFRS. BR R-14





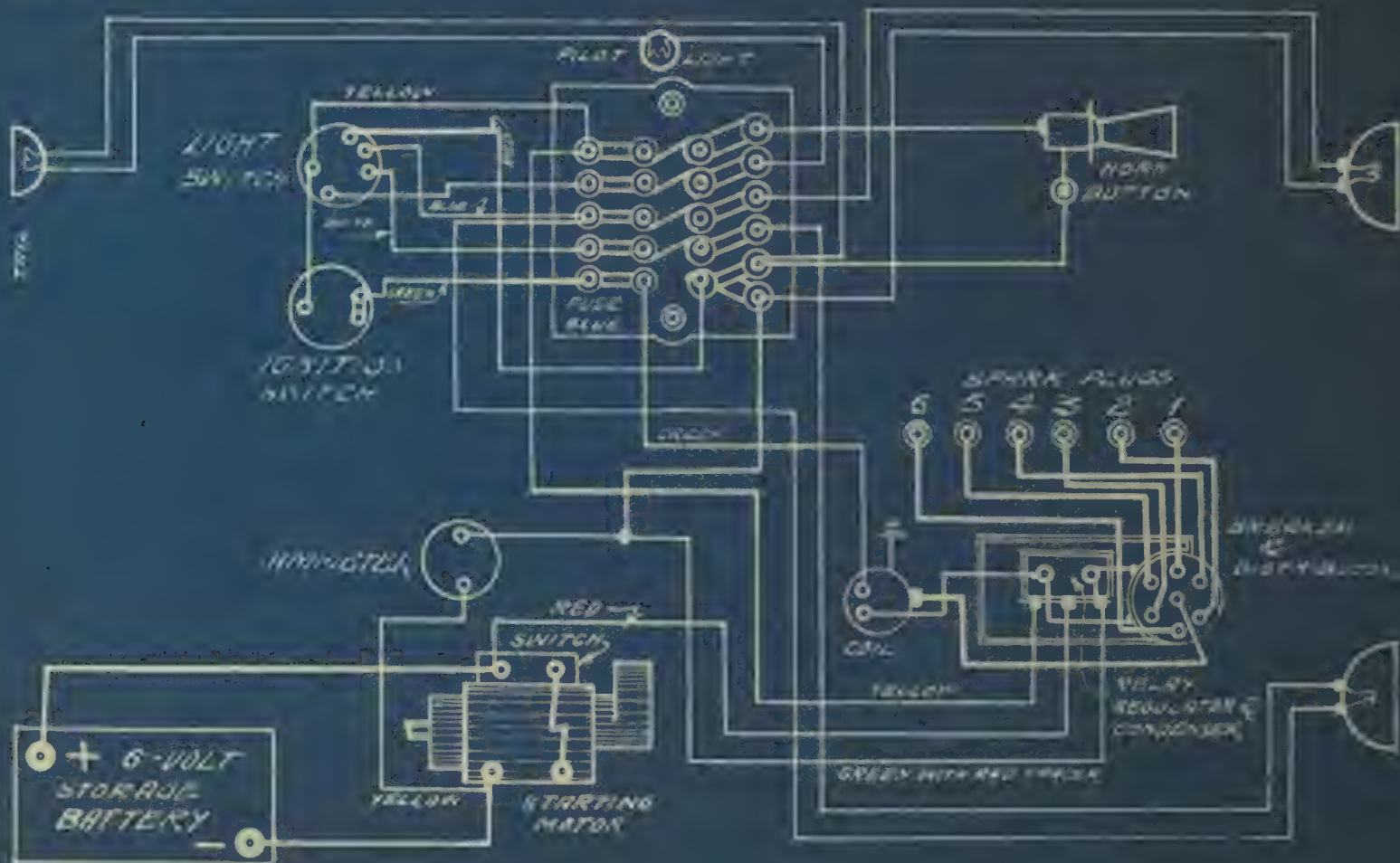
REO 1945 MODELS R & M  
REMY SYSTEM

FROM MEMRS. B. P.



REO 1916 MODELS M & U  
REMY SYSTEM

FROM MARS BR 10-12

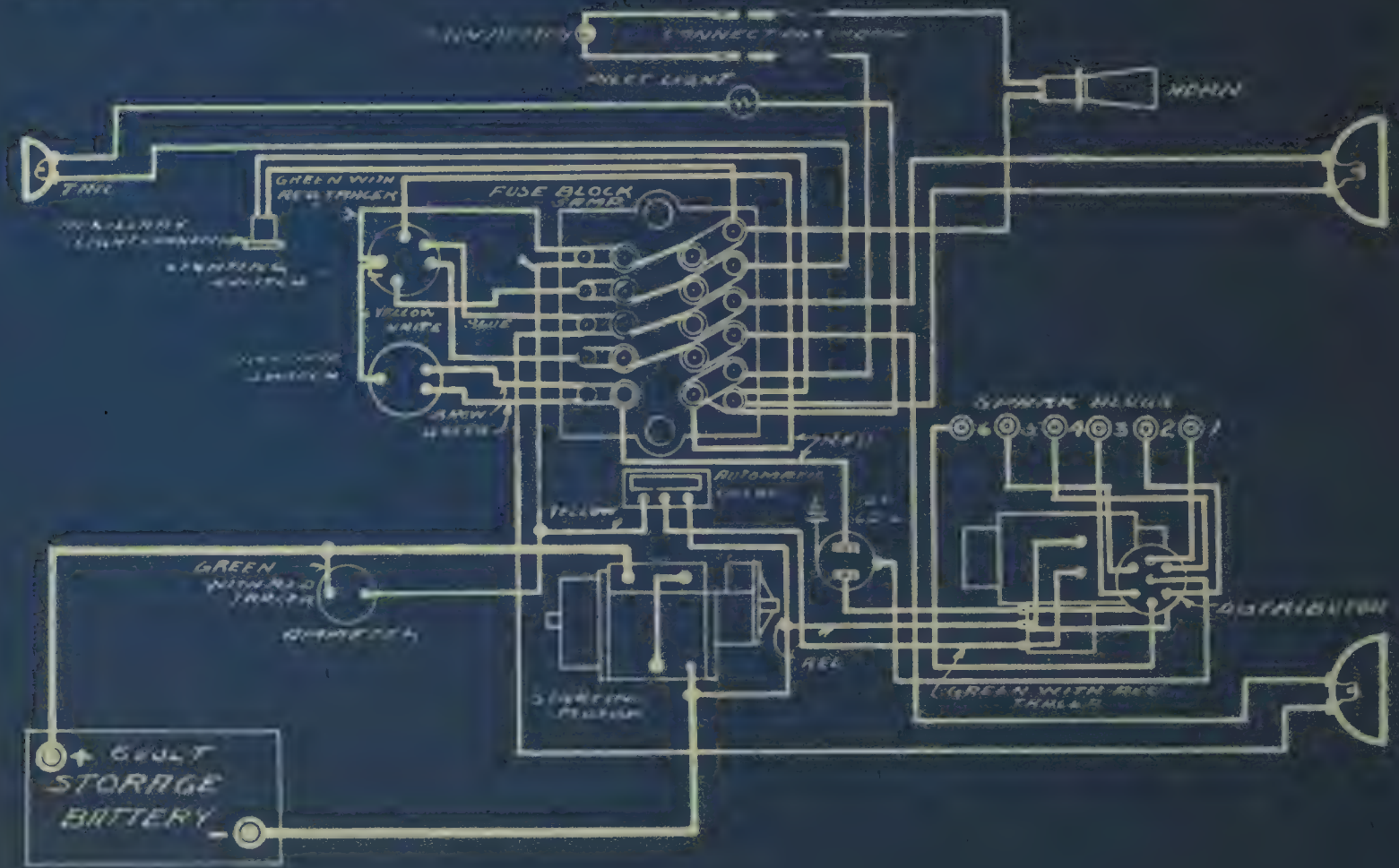




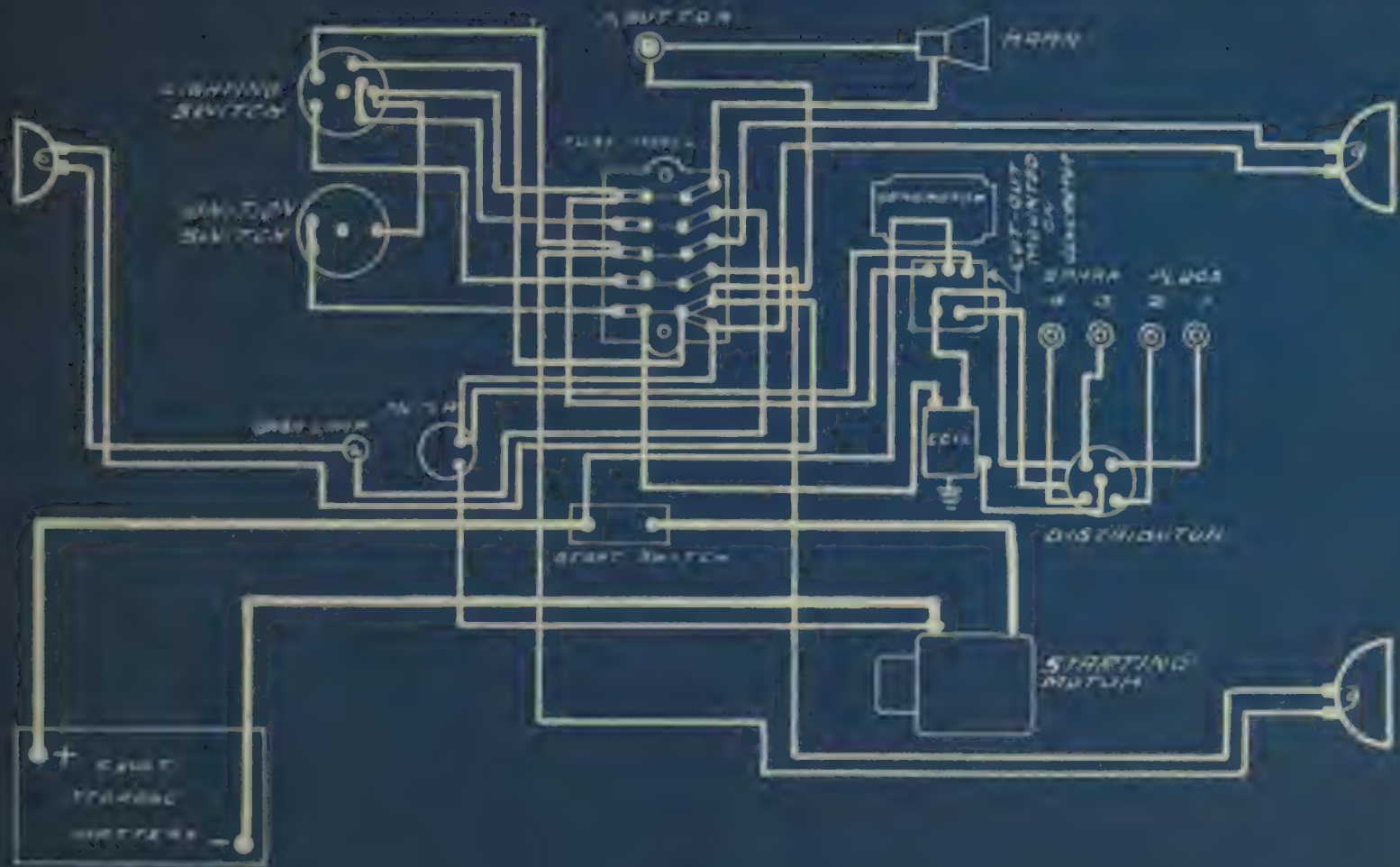


# REO 1917 MODELS M-N-R&S REMY SYSTEM

FROM REO B.P. 11631

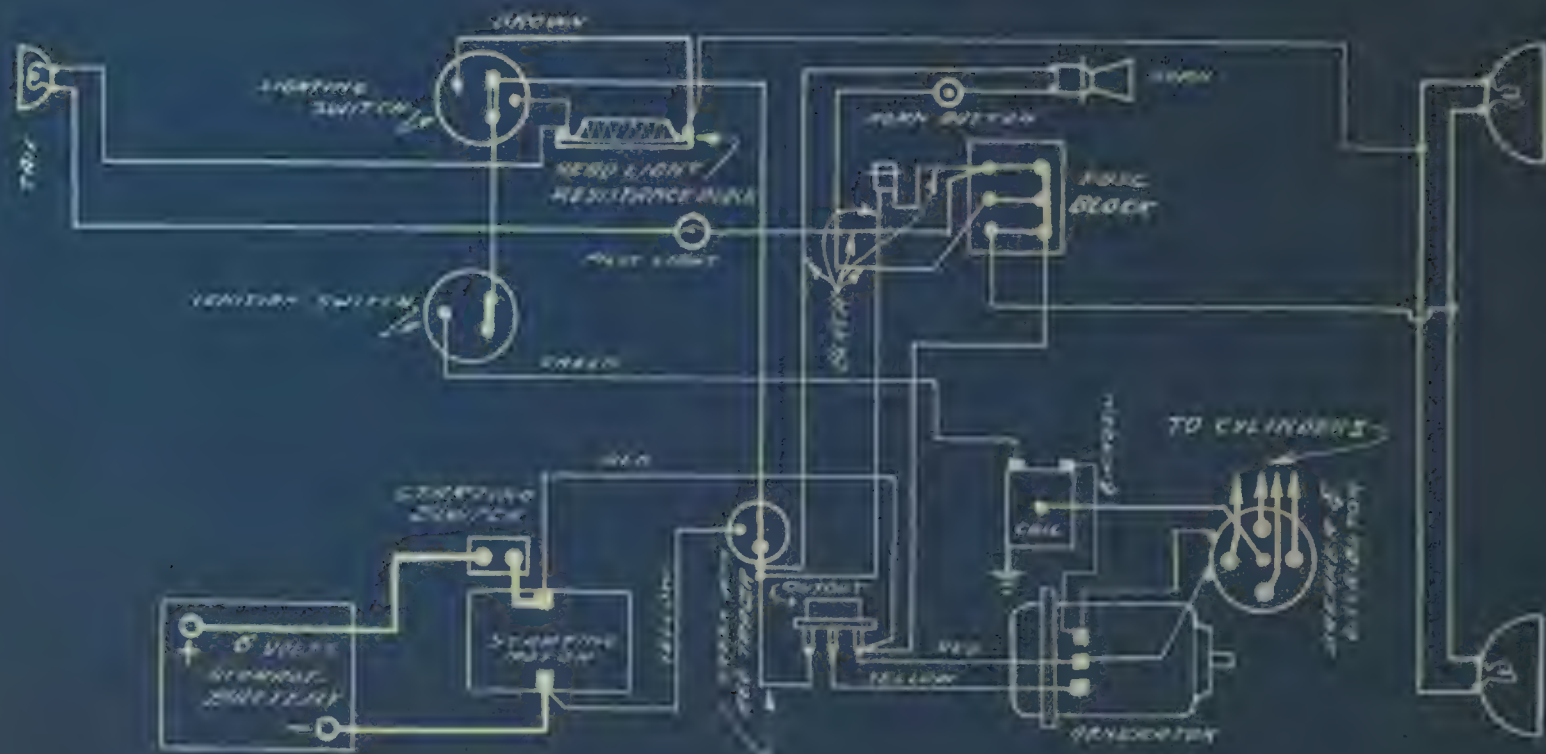


Automotive Supply Co.



# REO 1918 "T & U" 1919 REMY SYSTEM

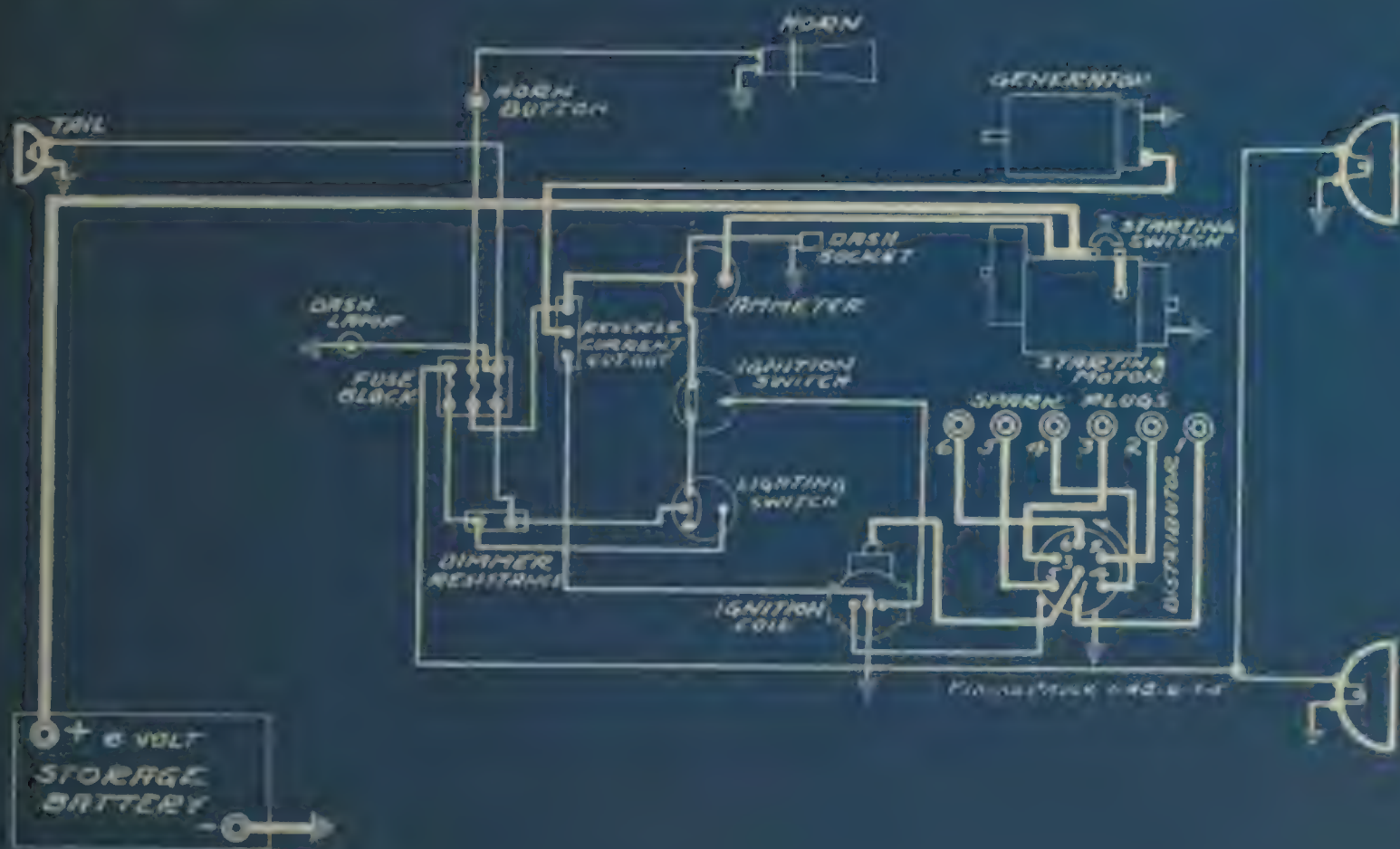
FROM REO BR-1 T.G./B.





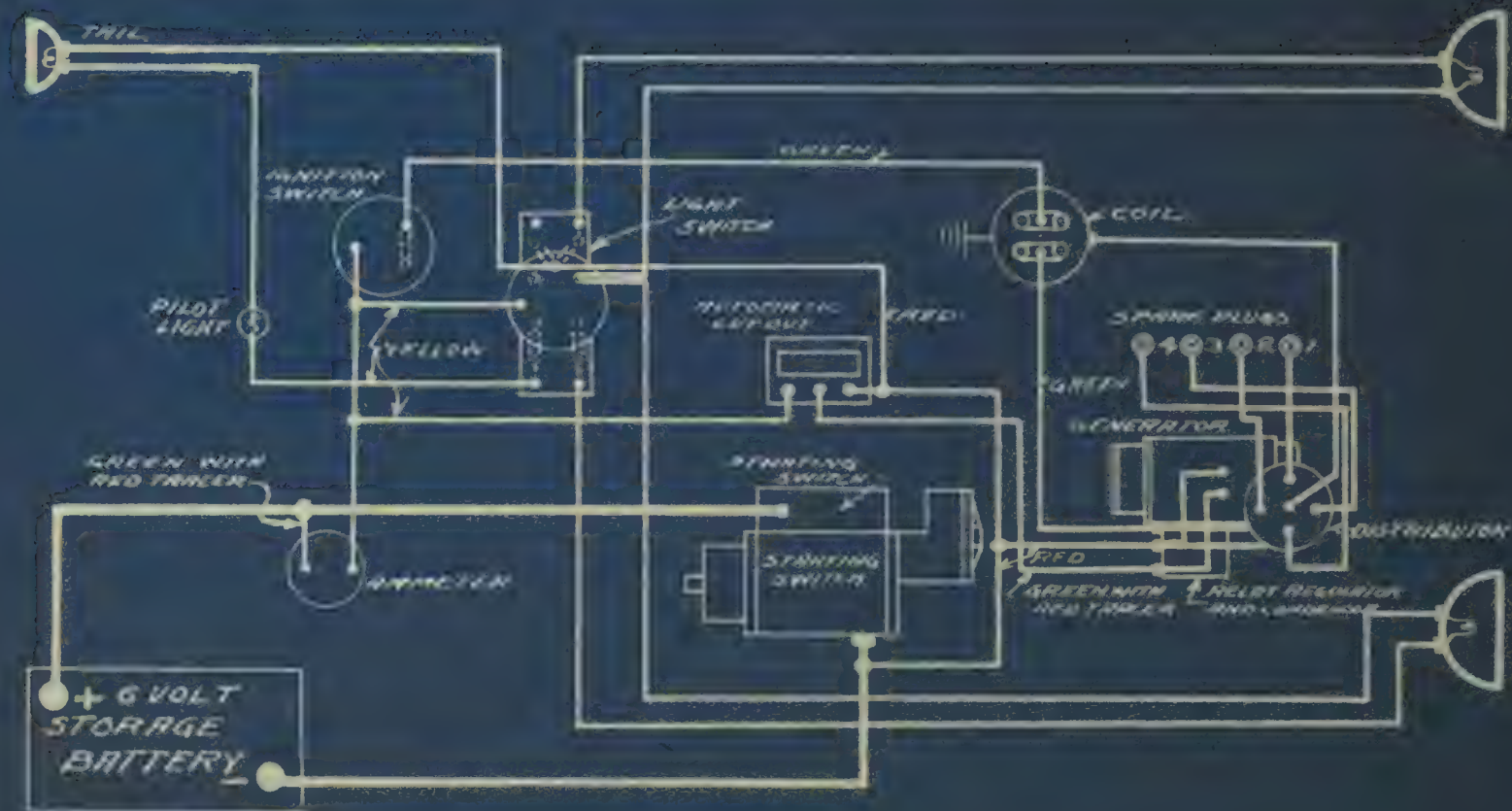
# REO MODEL T6 & U6 1919-1920 NORTH EAST SYSTEM

FROM REPT. BUL. NO. 57



REO TRUCK 1917-18-19-20  
REMY SYSTEM

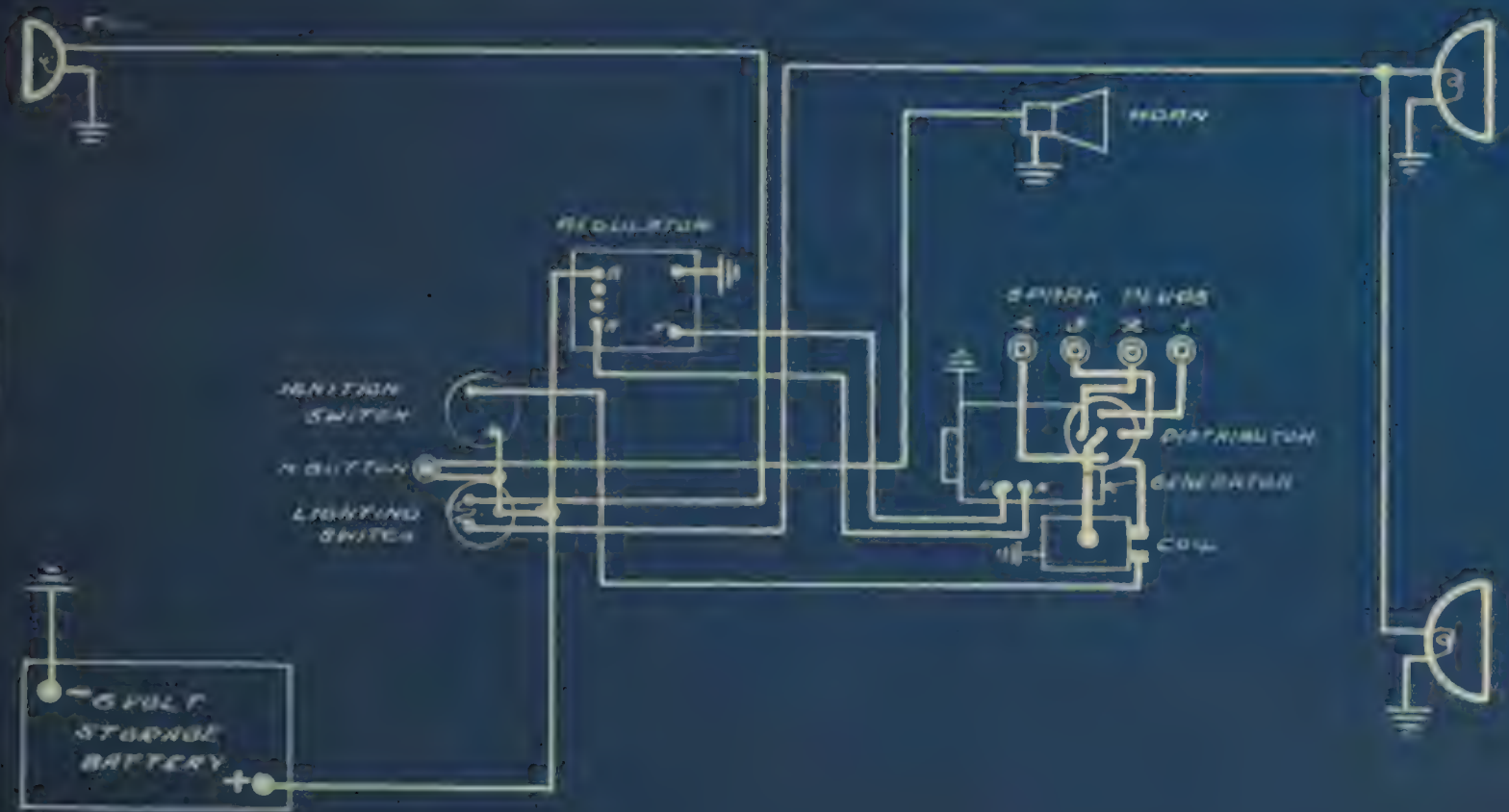
FROM MFRS B.P. 2FG35



# REPUBLIC TRUCK - MODELS 8 & 9.

WEEKLY DISTRIBUTION & LIGHTING SYSTEM

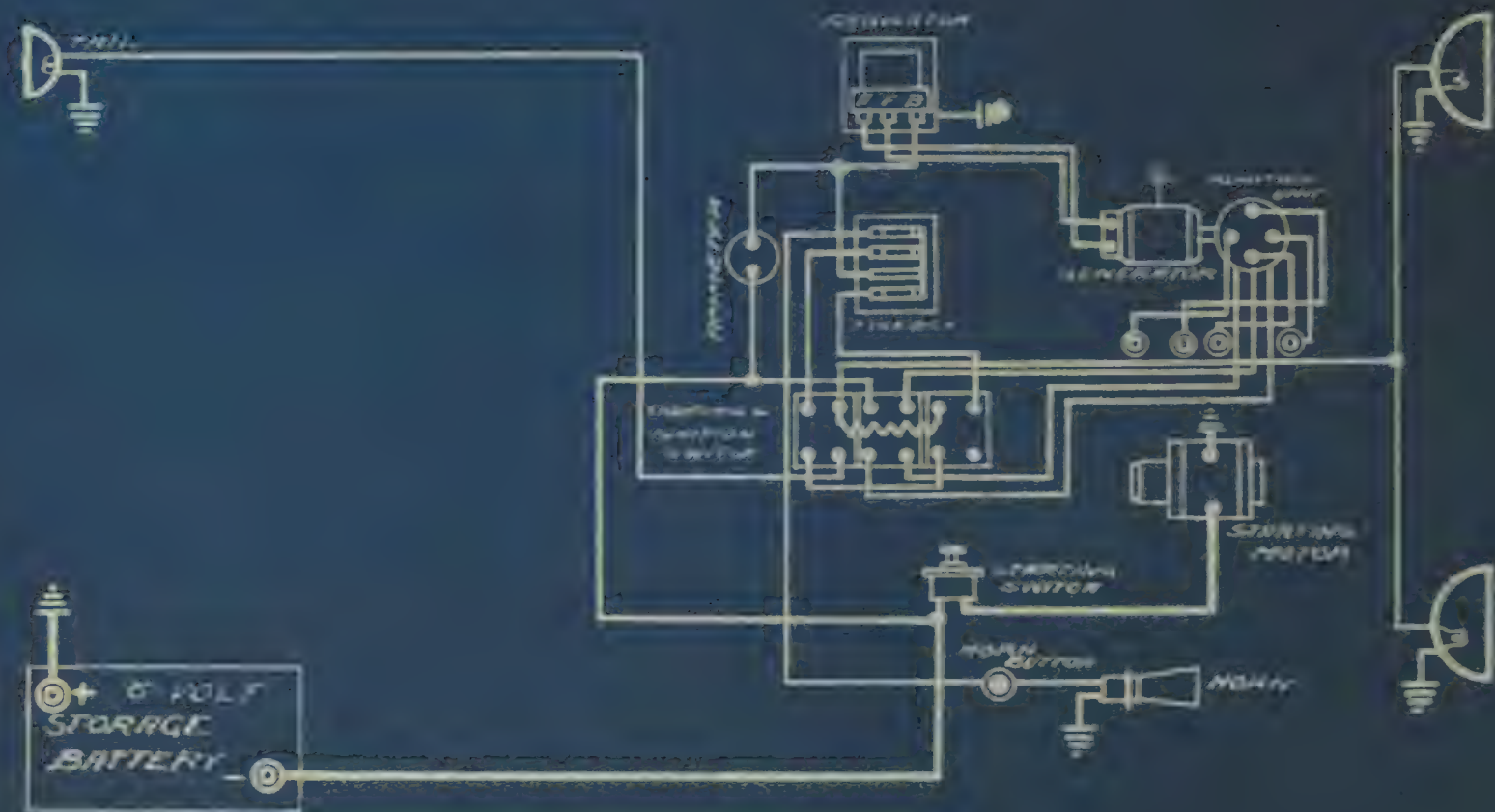
TRAIL HEADS UP SIDE





# REPUBLIC TRUCK WESTINGHOUSE SYSTEM

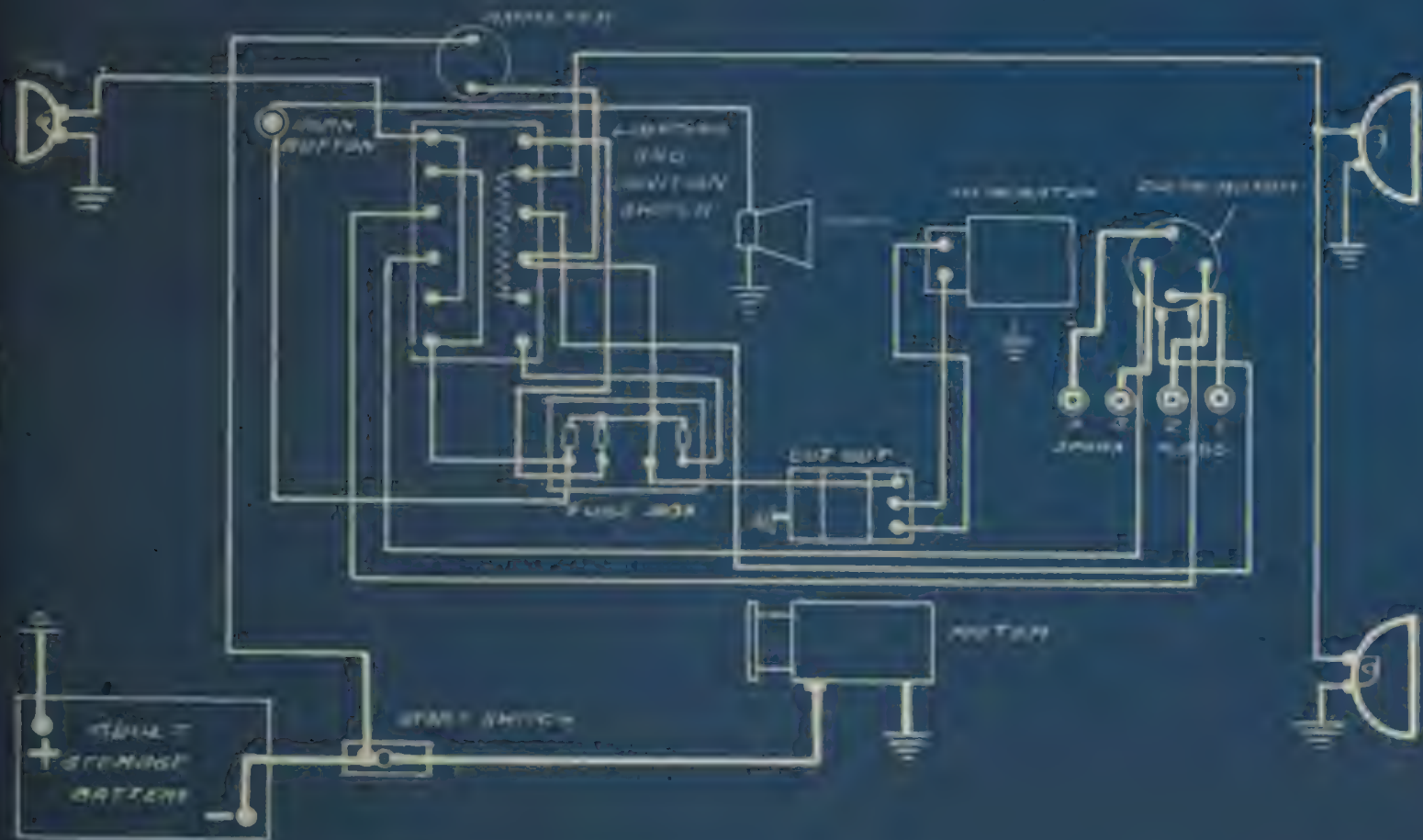
FROM WEST MANUAL



# REPUBLIC TRUCK MODEL 10-11

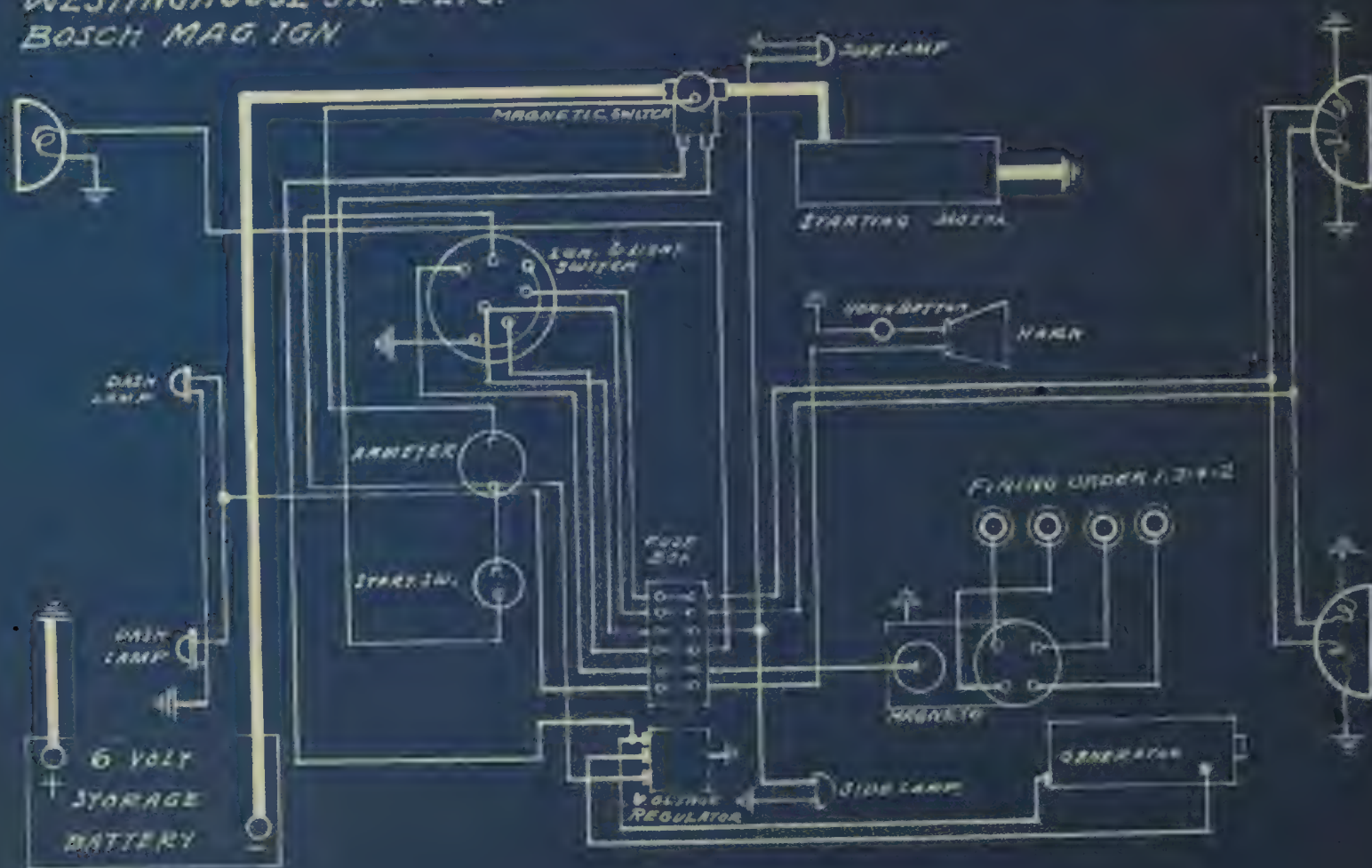
WIRING DIAGRAM

1940-1941 Model 10-11



REVERE 1919-1920  
WESTINGHOUSE STG. & LTG.  
BOSCH MAG. IGN.

FROM NARCAS 75-20

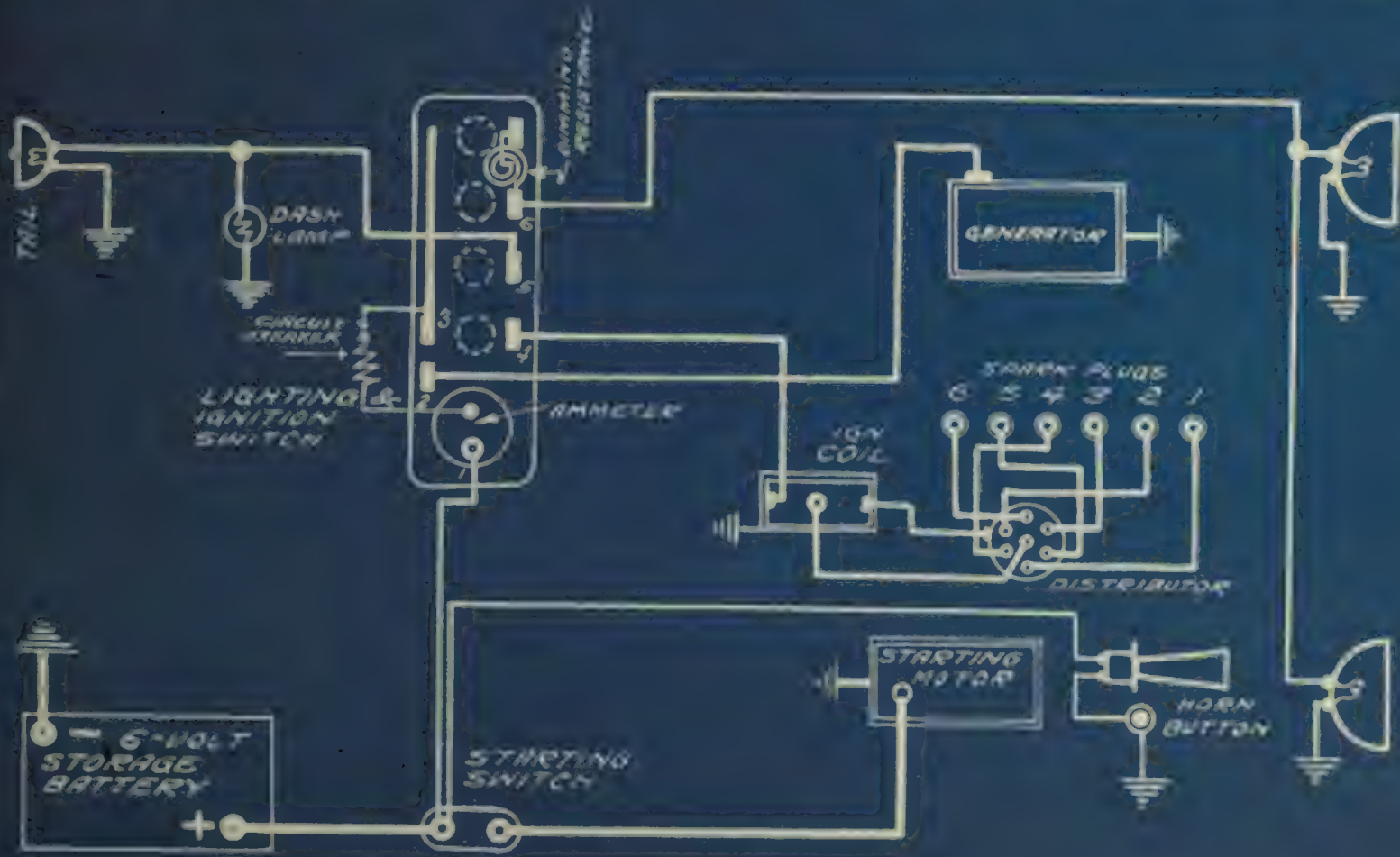




# RIDDLE COACH & HEARSE 1917

## DELCO SYSTEM

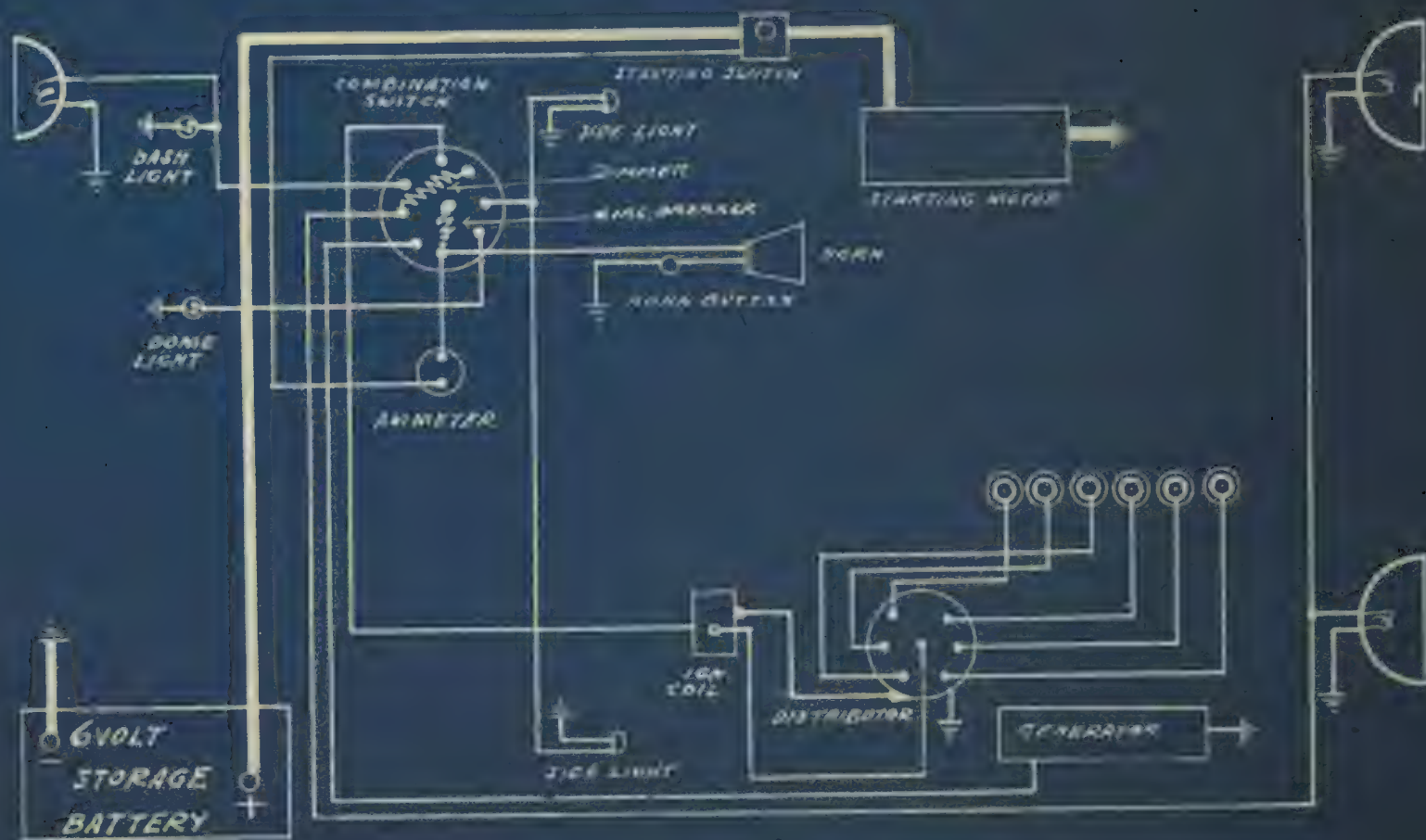
FROM DELCO MANUAL



# RIDDLE HEARSE "19" 1919-1920

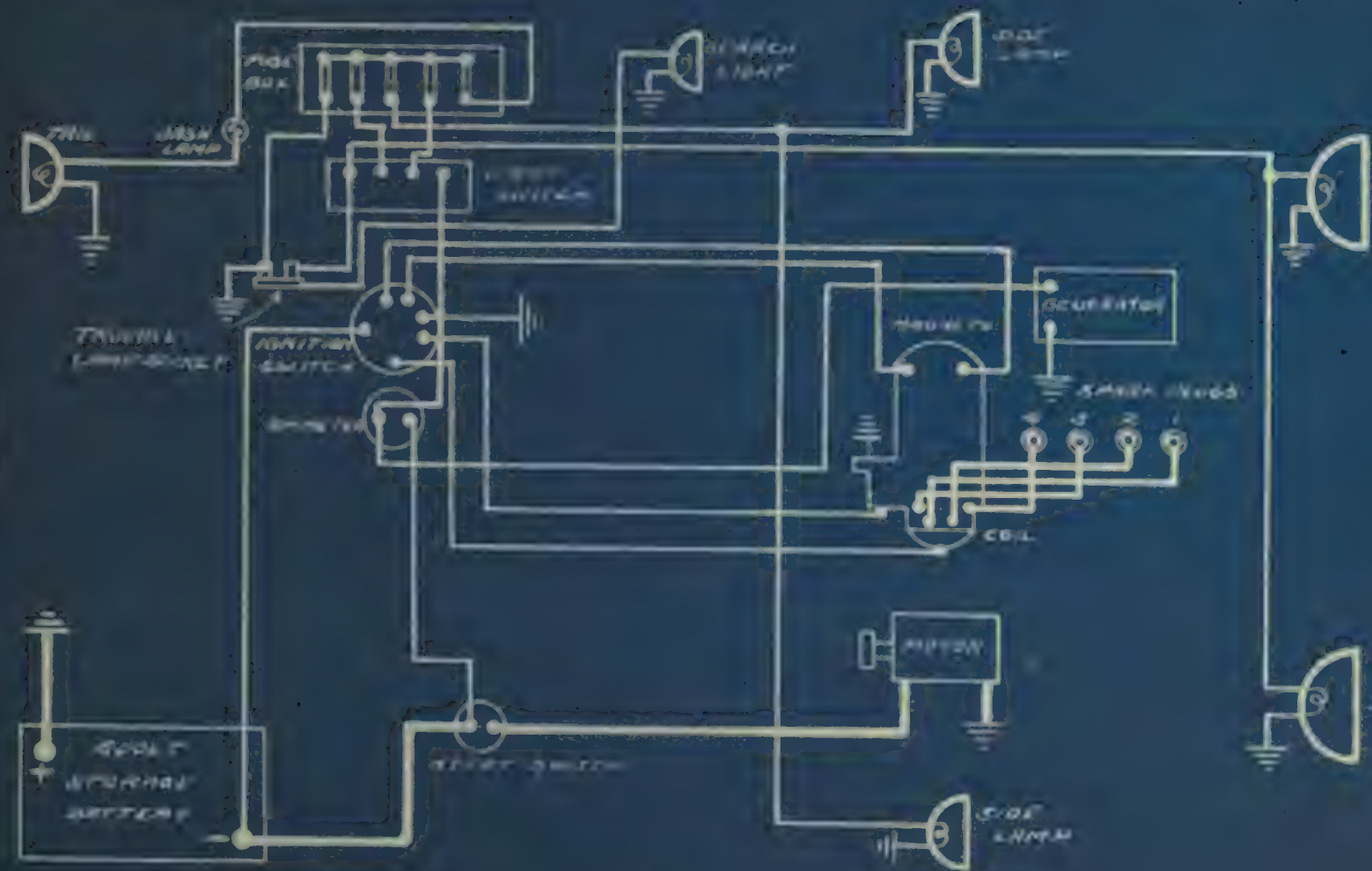
## DELCO SYSTEM

FROM MFRS INST BOOK



**RIKER TRUCK 1918**  
WESTINGHOUSE SYSTEM

— **WILLIAM H. HARRIS**, *President*

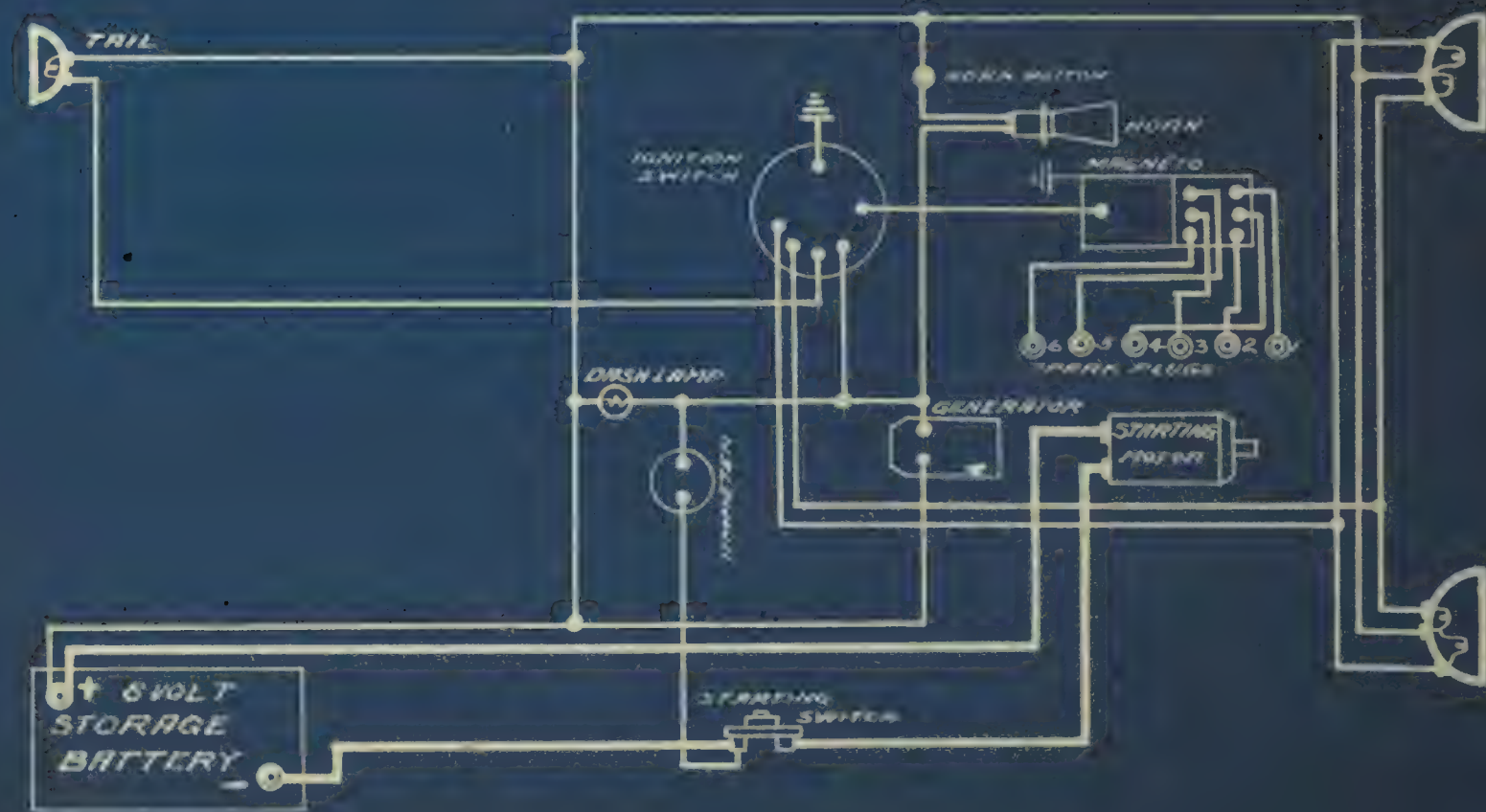




**FORMER 1916  
BIVOL SYSTEM  
BOSCH IGNITION**

USED ON CARS ONE TO 13126

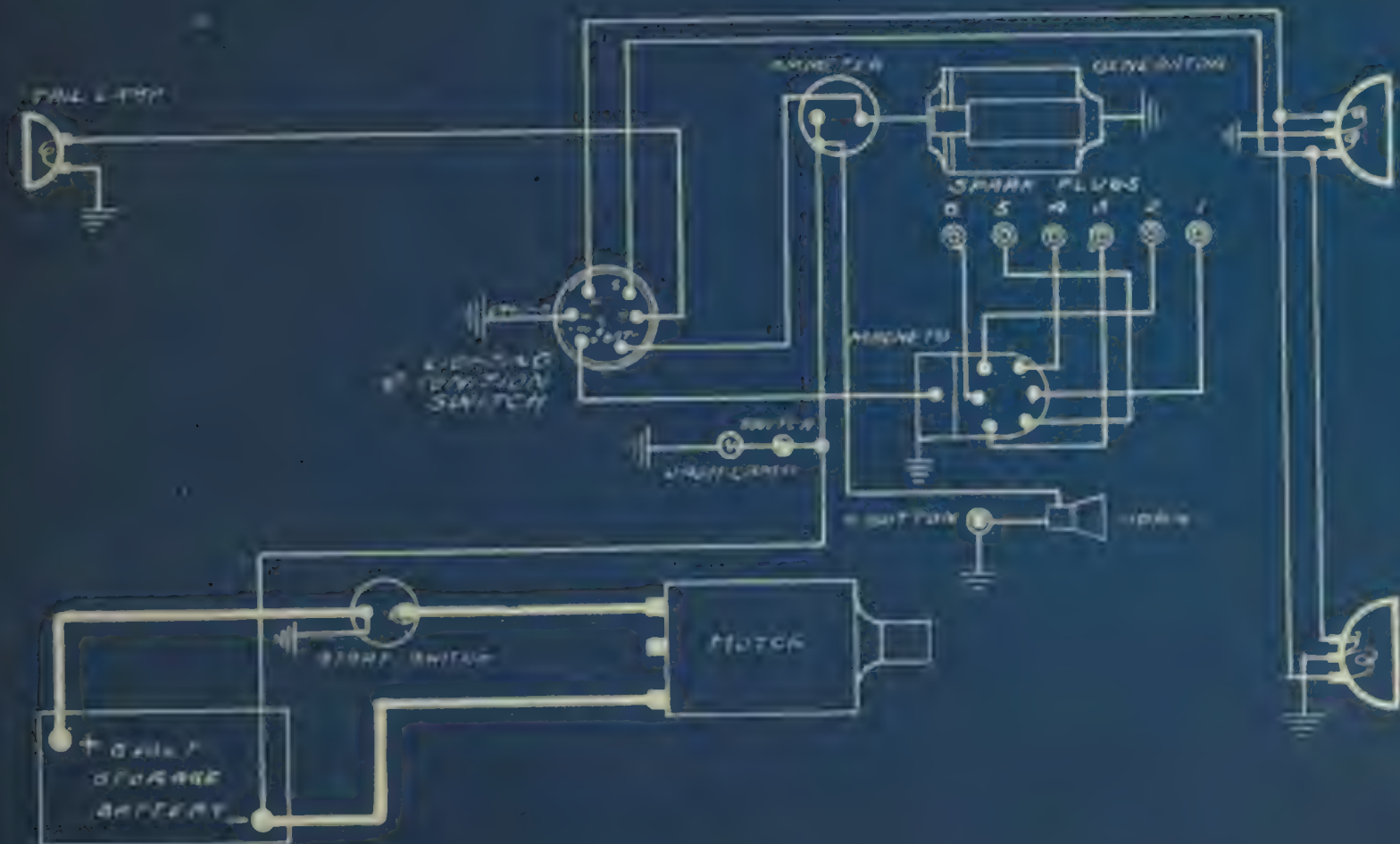
FROM HYD B.P. 4



ROAMER

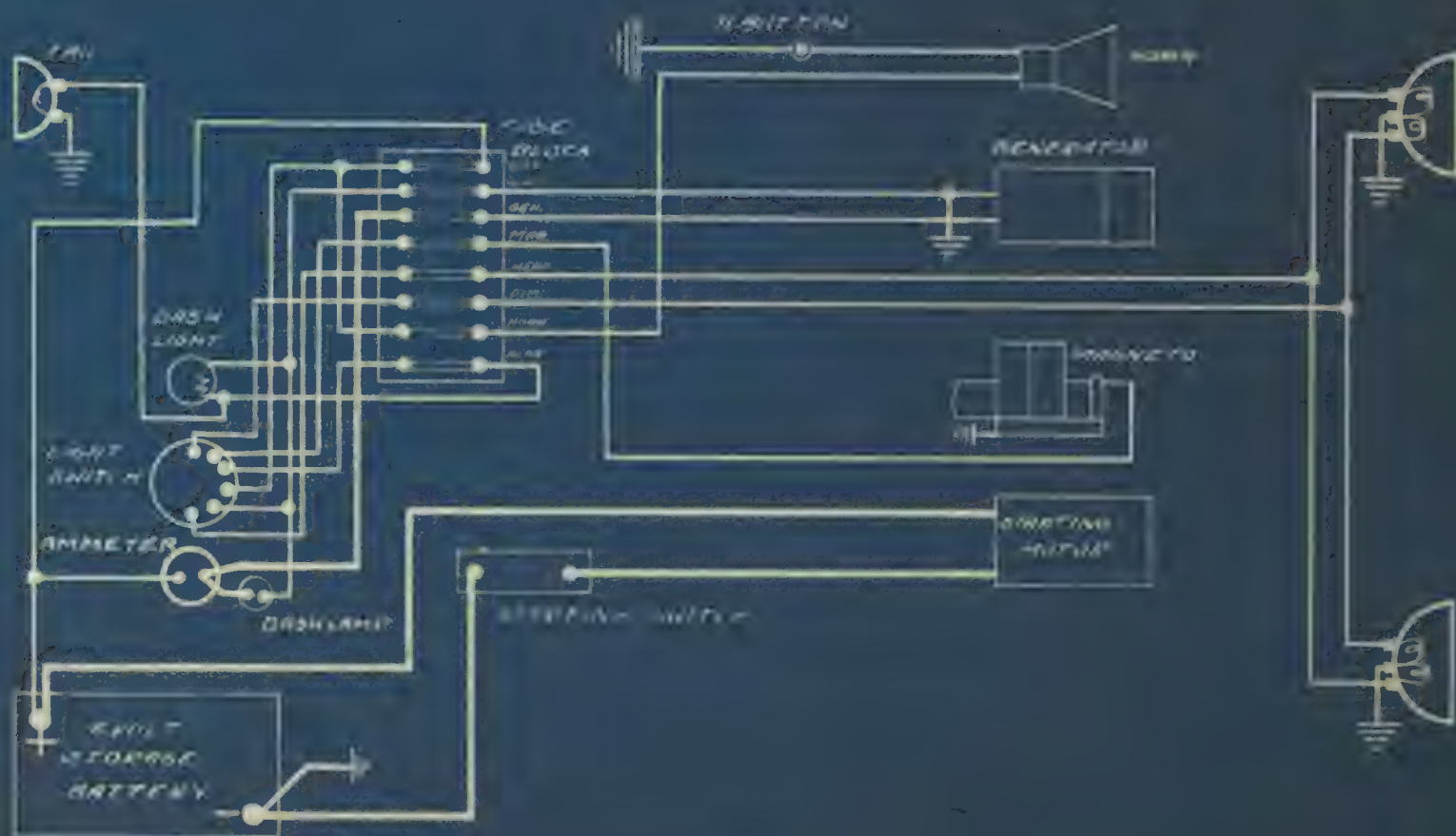
MODEL R-H 1917

FROM BAYN 3446



**BOSTON AND TENNESSEE**

SPIN NEWS &amp; ARTS





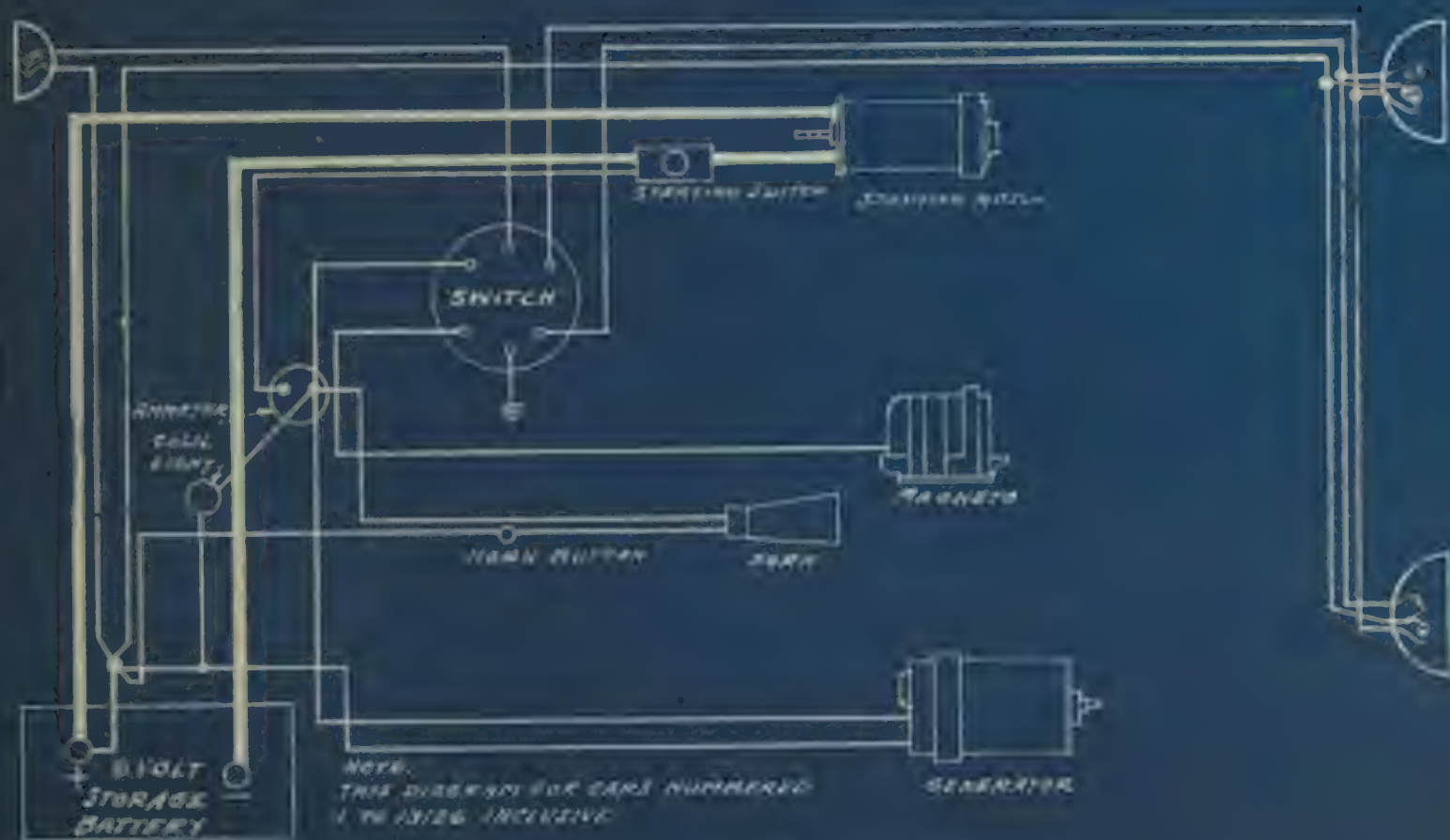
# ROAMER ALL MODELS 1919

ENR STARTING & LIGHTING

BOSCH MAGNETO IGN

CHRYSLER 1919-1920

AUTOMOTIVE ELECTRICAL CO.

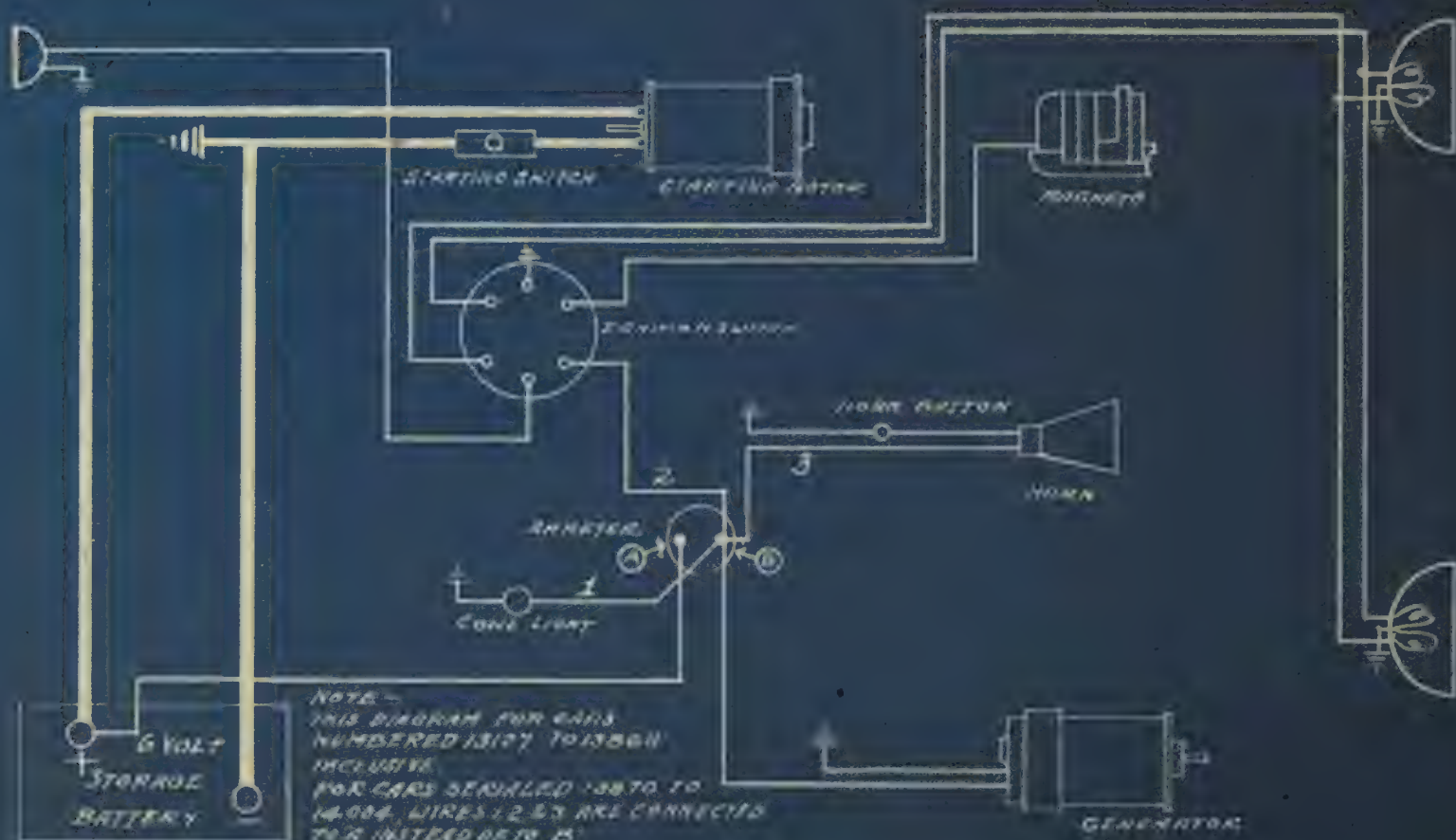


# ROAMER 6-54 1920

BIGUR STARTING & LIGHTING

BOSCH MAGNETO IGN

FROM 2067 25000

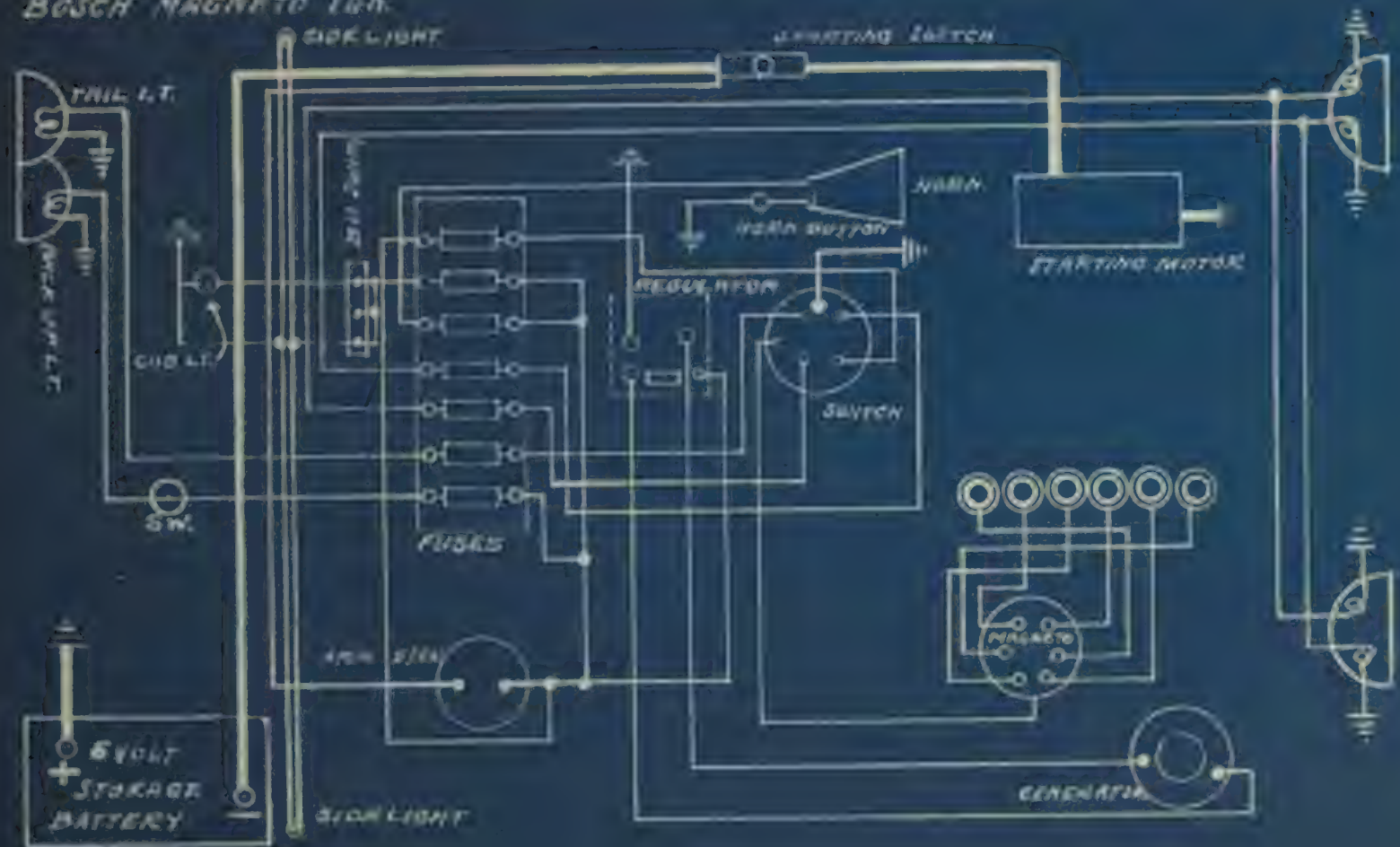


# ROCK FALLS MODEL '9' 1919-1920

WESTINGHOUSE SYSTEM

BOSCH MAGNETO GEN.

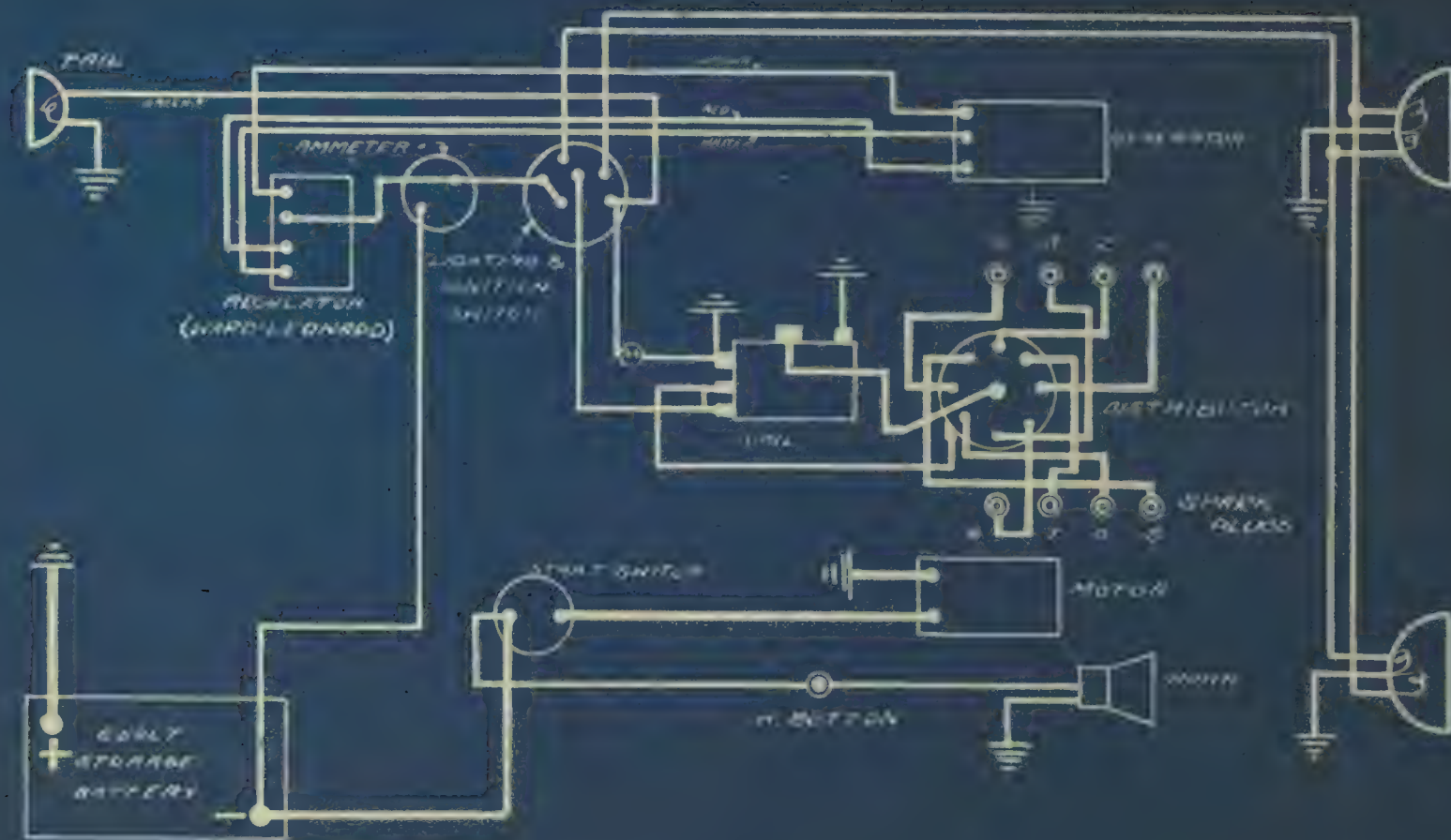
FROM MODEL 25 H 111518





**ROSS 1916-1917**  
**ROBBINS & MEYER SYSTEM**  
**STARTER & IGNITION**

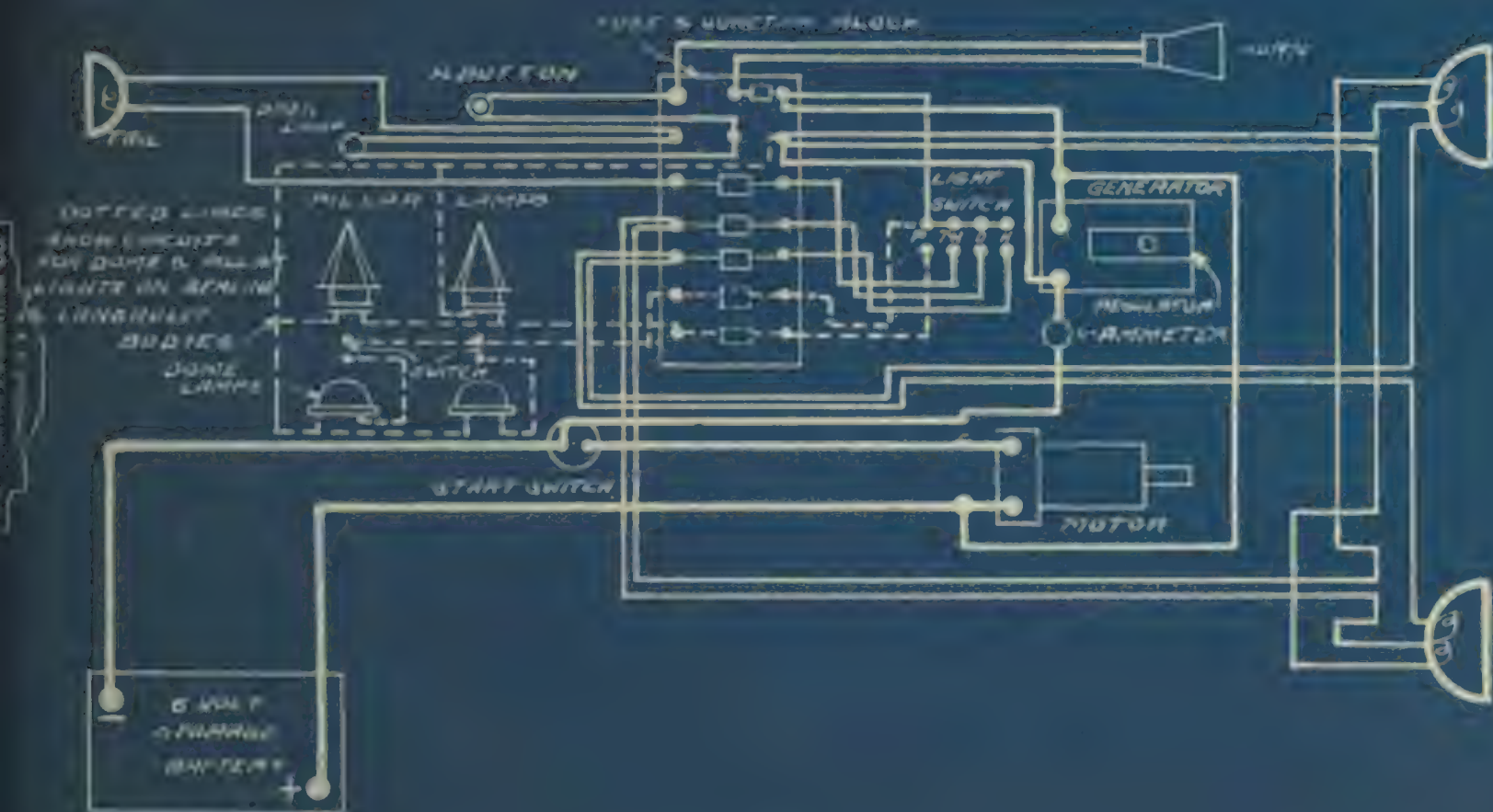
**MODEL "8"**



# RUSSELL MODELS 32 & 48

WIRE SYSTEM

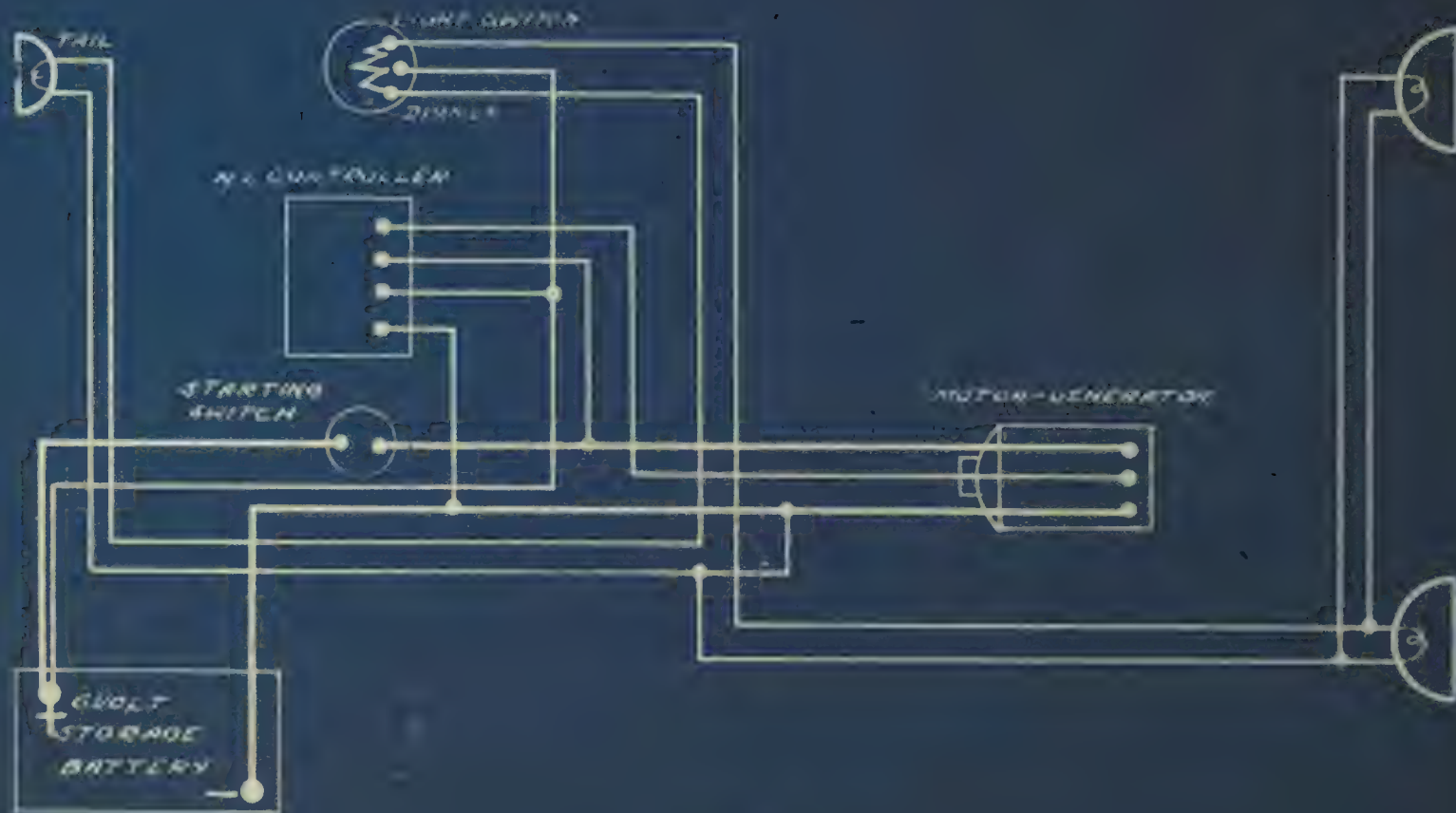
2000 1000 100 10 1



SAXON 1915  
WARD-LEONARD SYSTEM

FOUR

WHEEL MOTOR

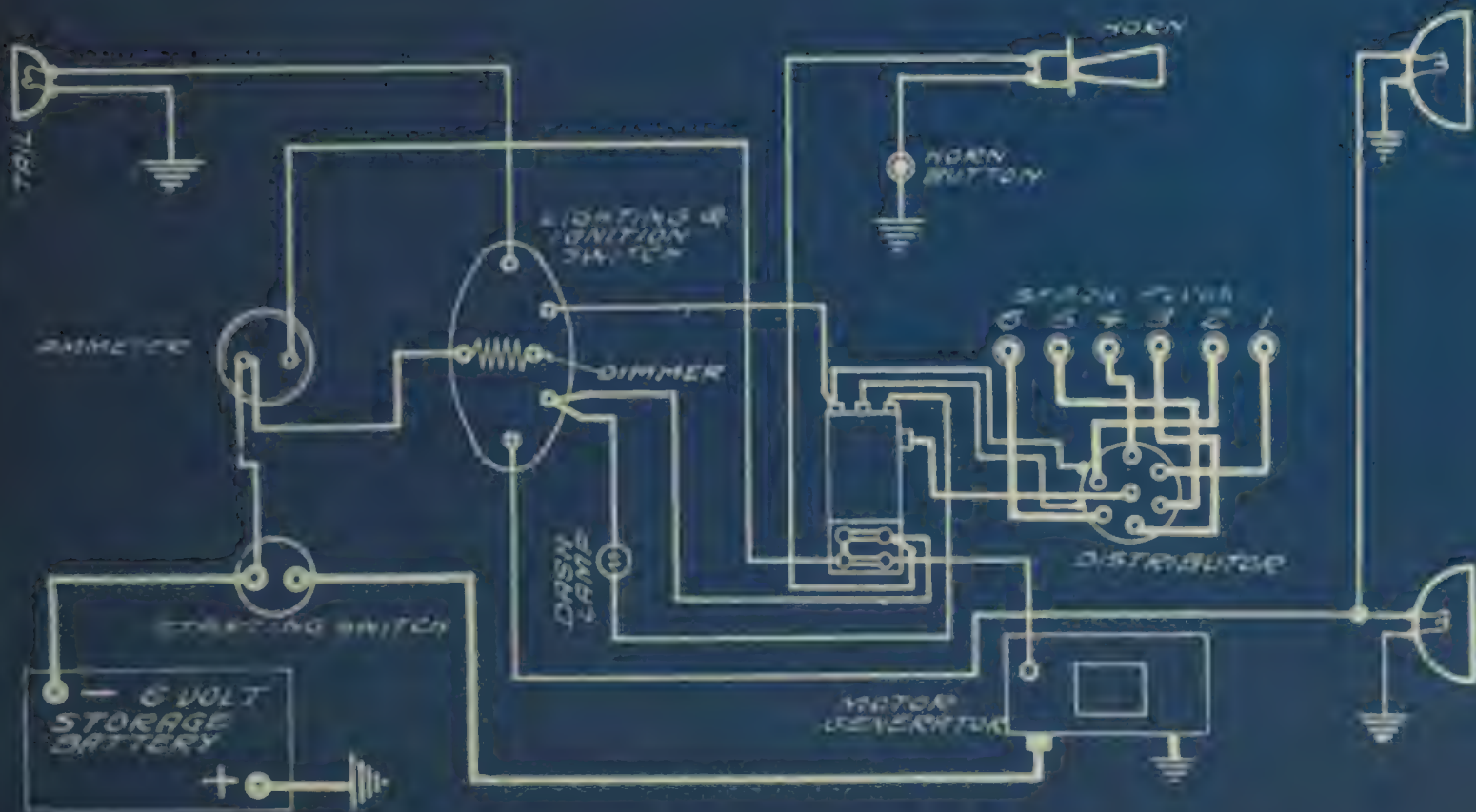




**SAXON 1915-16**  
 GRAY AND DAVIS SYSTEM

**SIX**

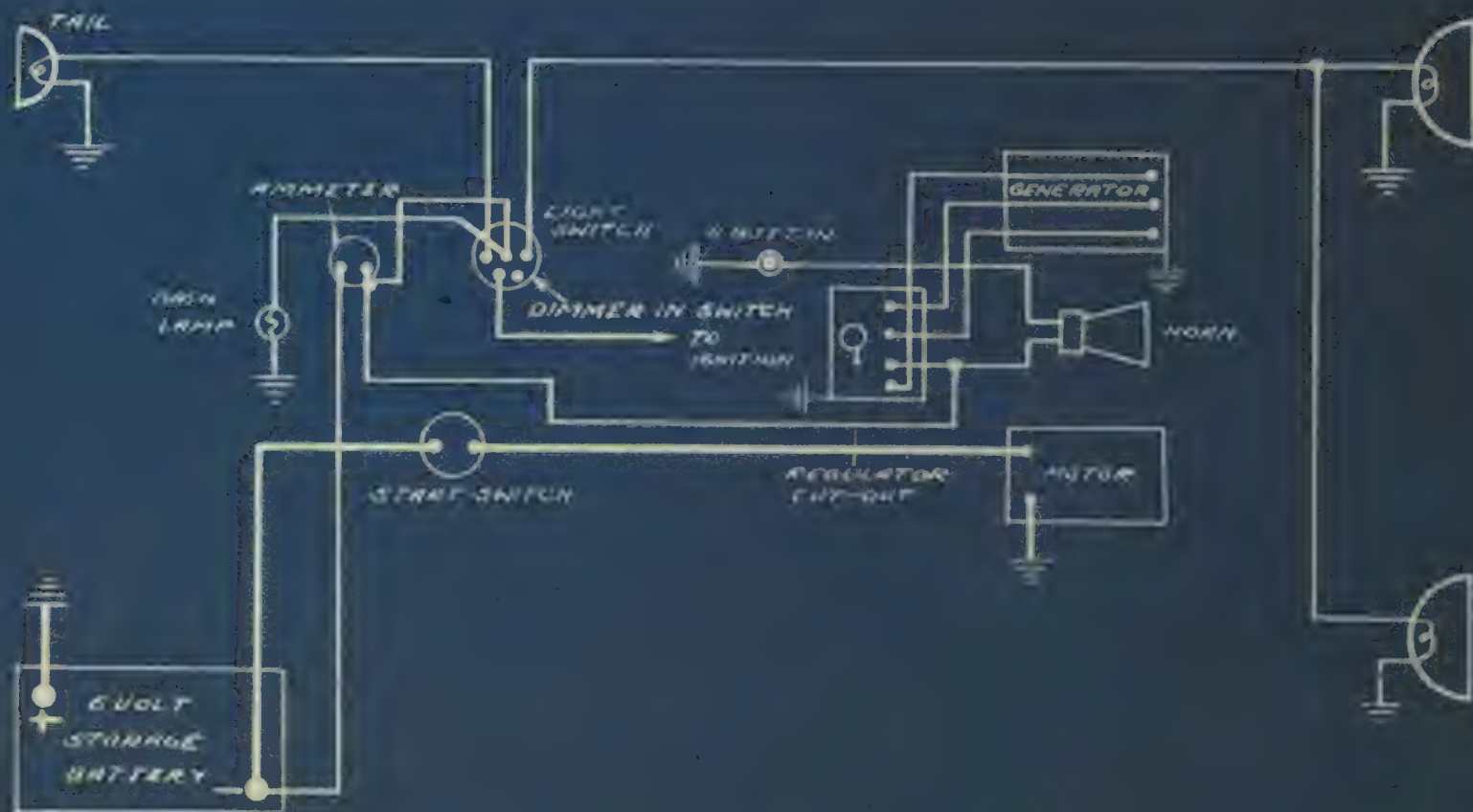
FROM MFR'S SKETCH



**SAXON 1916**  
WARD-LEONARD SYSTEM

**S-2**

FROM W. L. INST. BK.

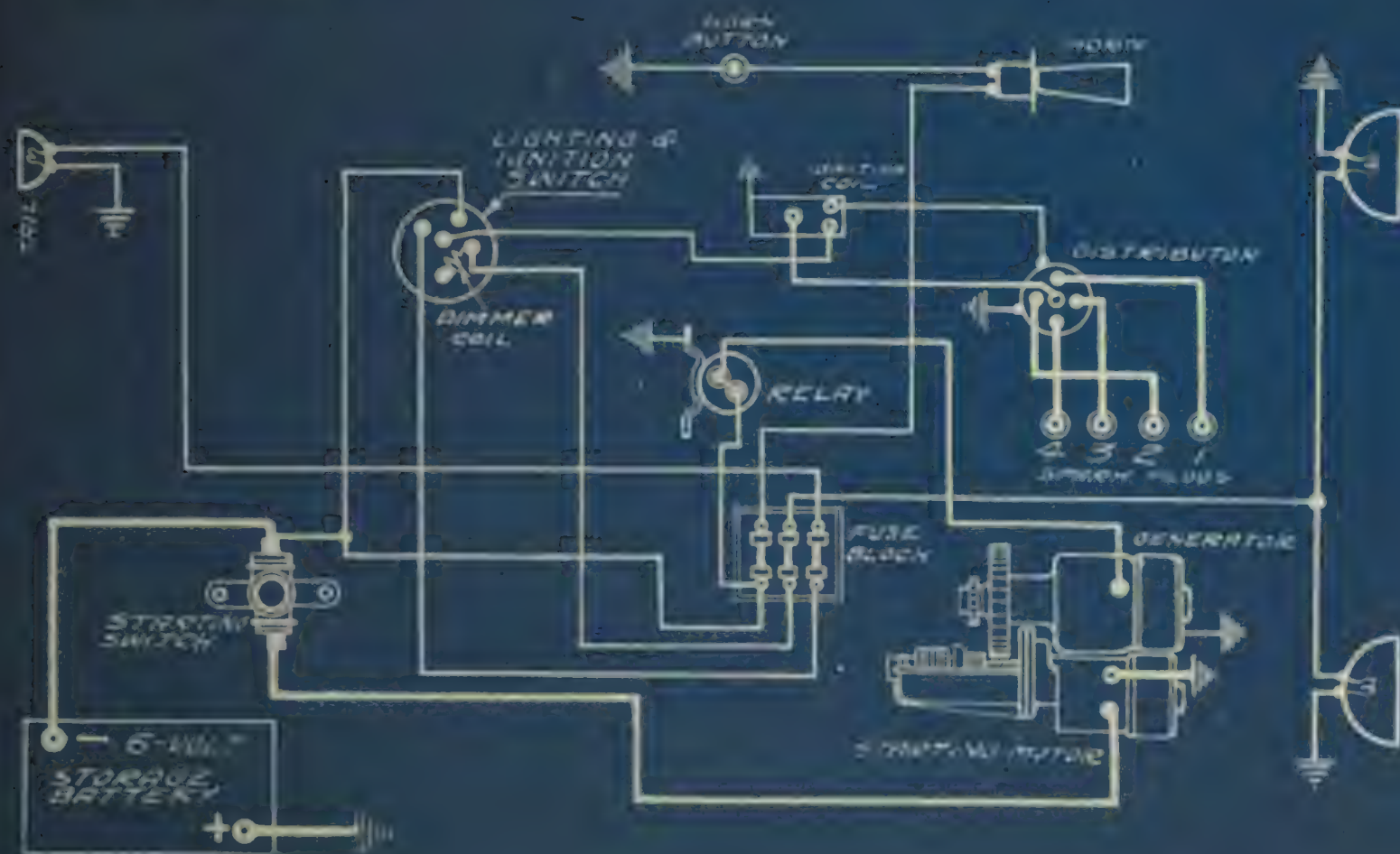


Copyright 1916 by  
Saxon Motor Car Co.  
Saxons are made in  
Saxons are made in  
Saxons are made in

**SAXON 1917**  
 WARNER SYSTEM

**B-5-R**

FROM WARNER INST. BK.

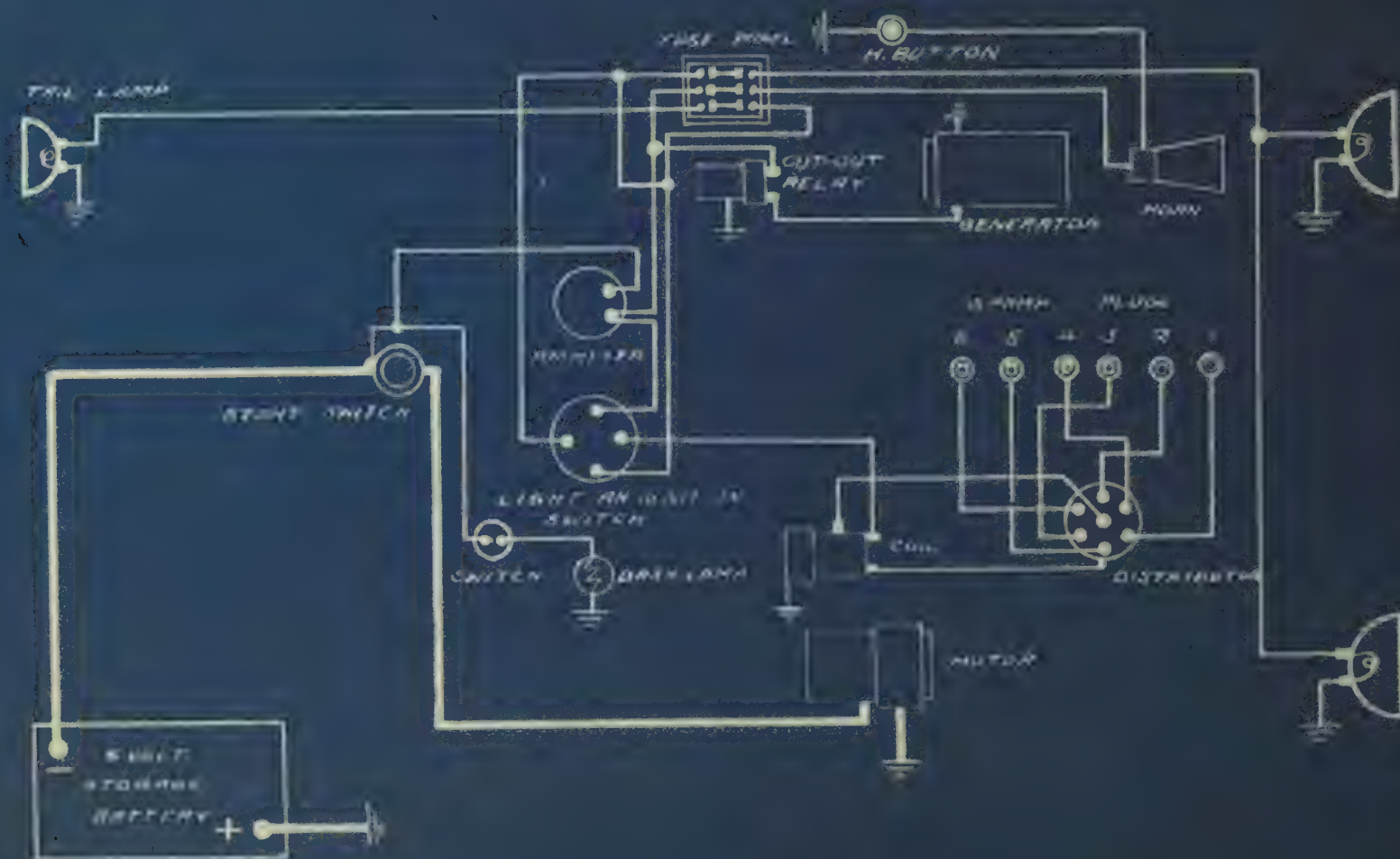




# SAXON 1917 54-1918 Y-18-1919 FY18.

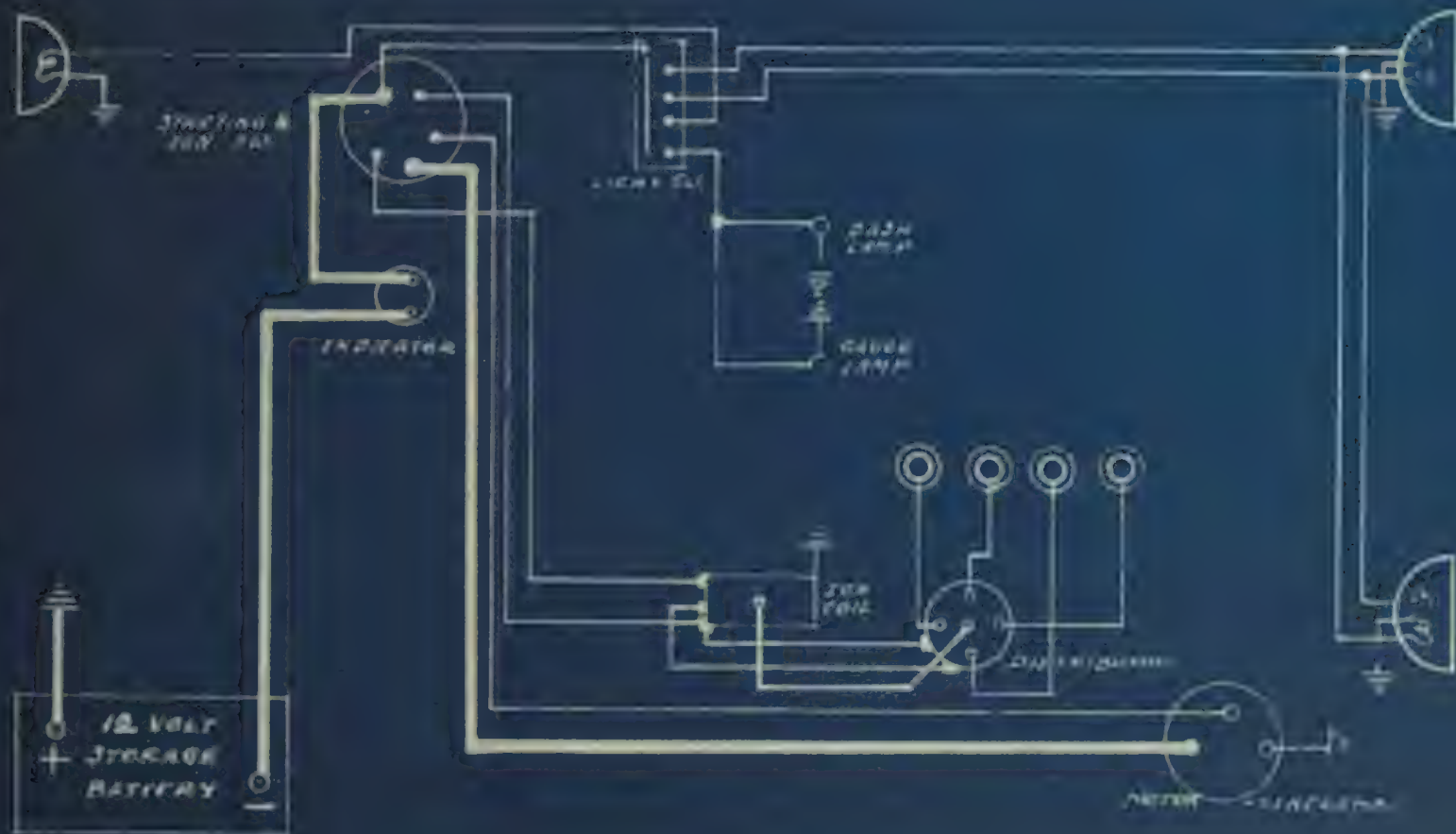
WAGNER SYSTEM — REMY IGNITION

76071 47115 1111 1-5-192



**SAXON 1916-1917**  
**BIGOR STARTING & LIGHTING**  
**ATWATER-KENT IGNITION**

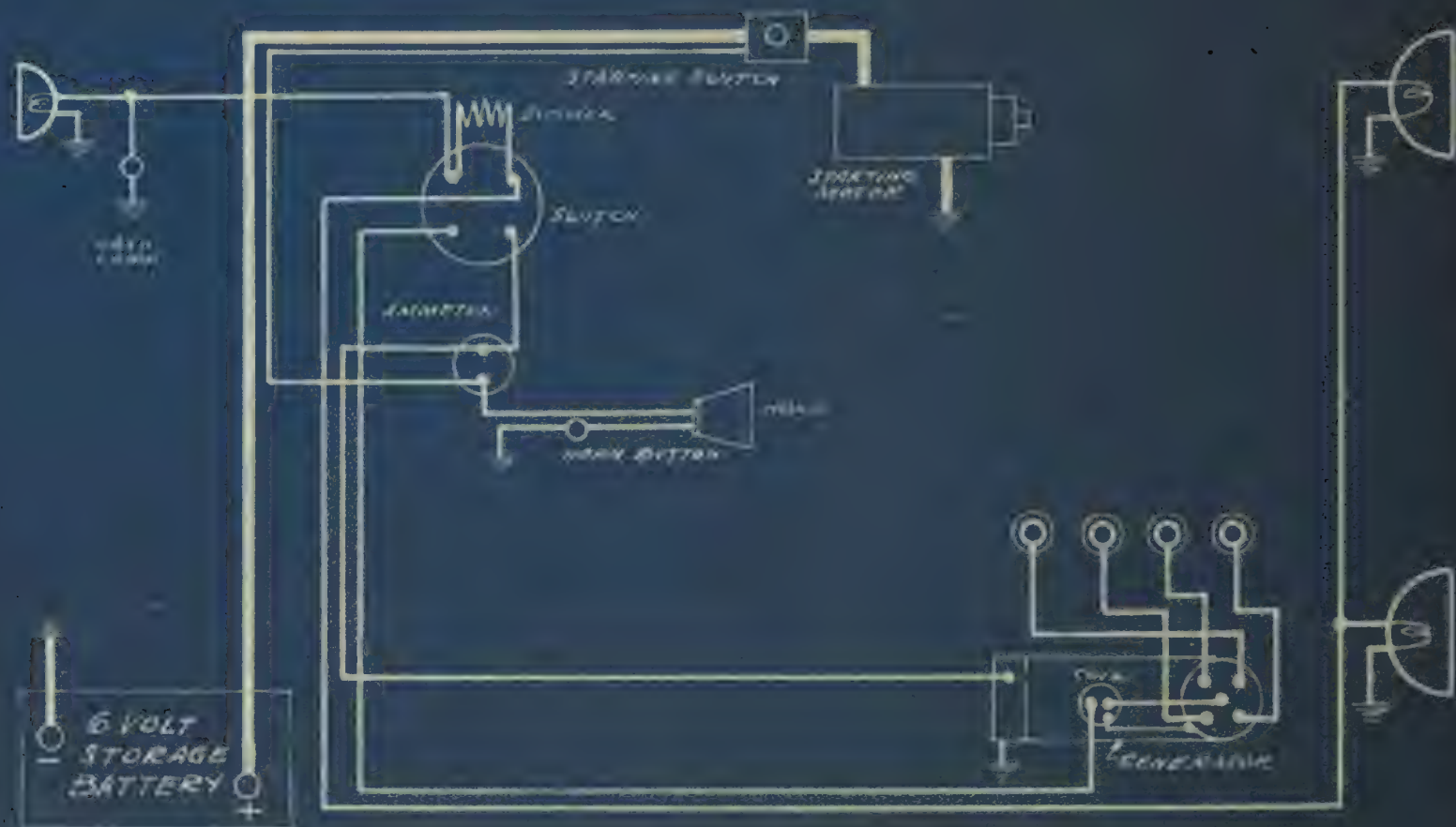
FRONT HOOKS SWITCH



# SAXON "125" 1920

GRAY & DAVIS SYSTEM

THOM ENGINEERS SKETCH



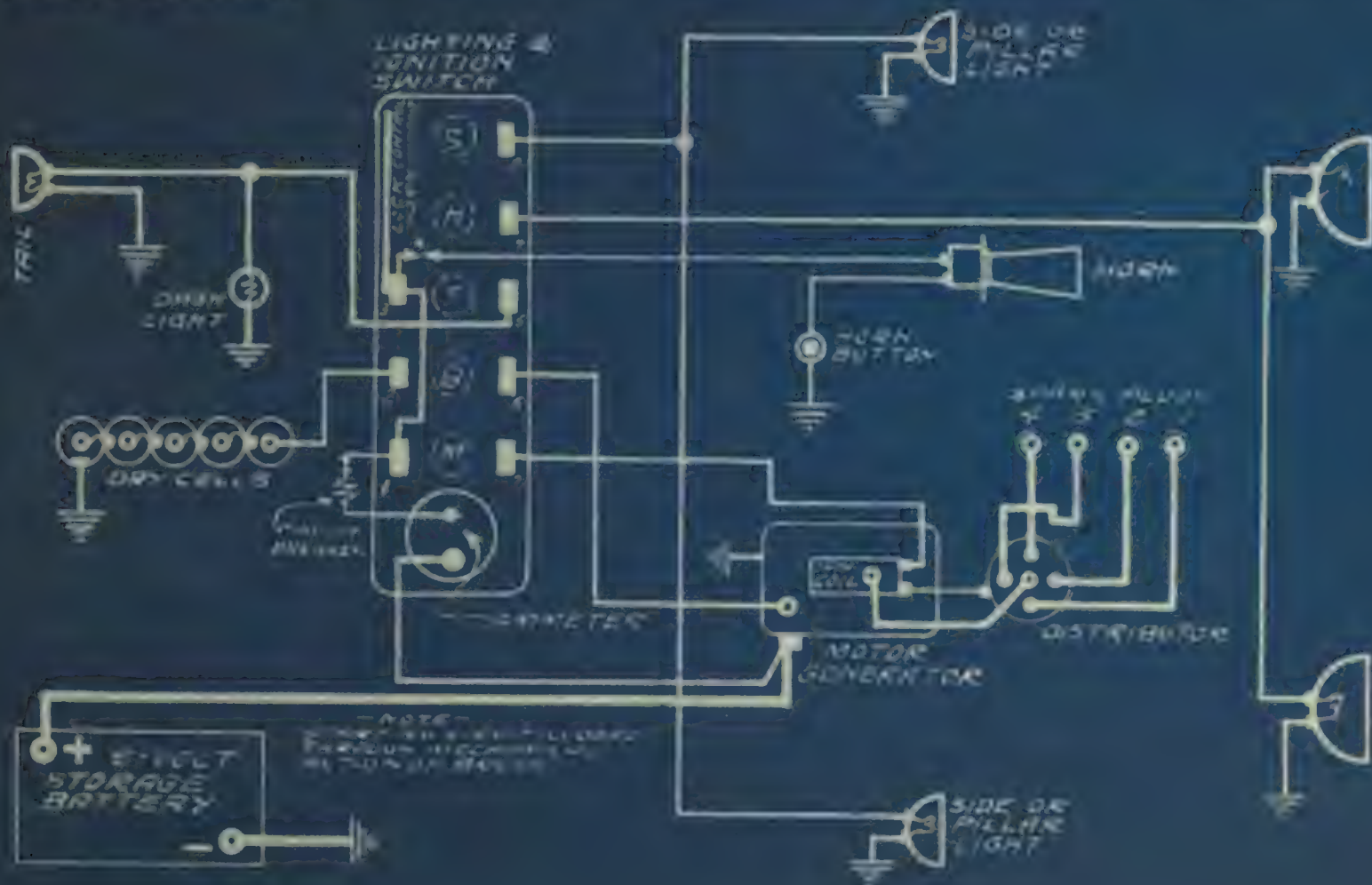


# SAYERS AND SCOVILL 1916

## DELCO SYSTEM

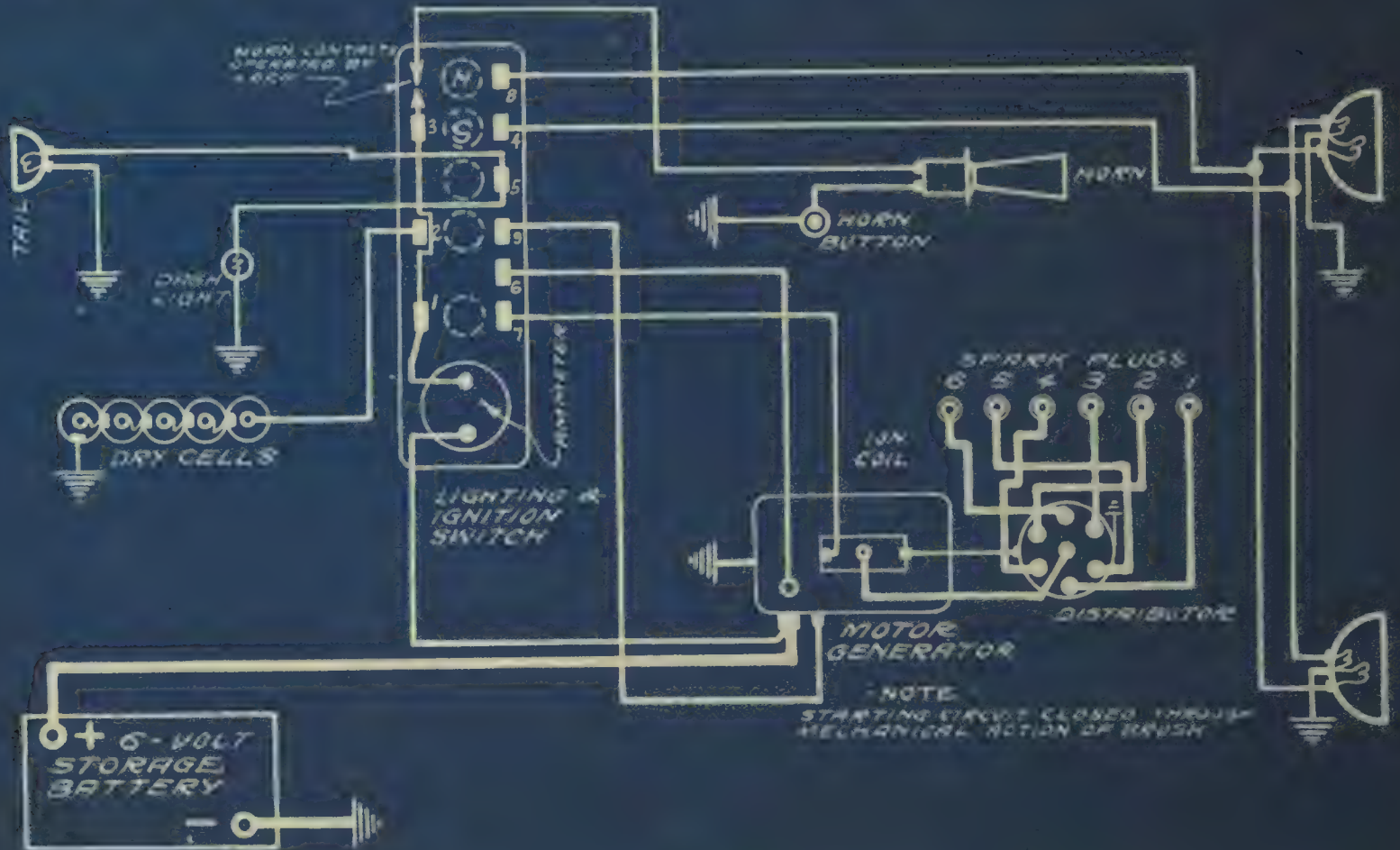
"4"

FROM DELCO MANUAL



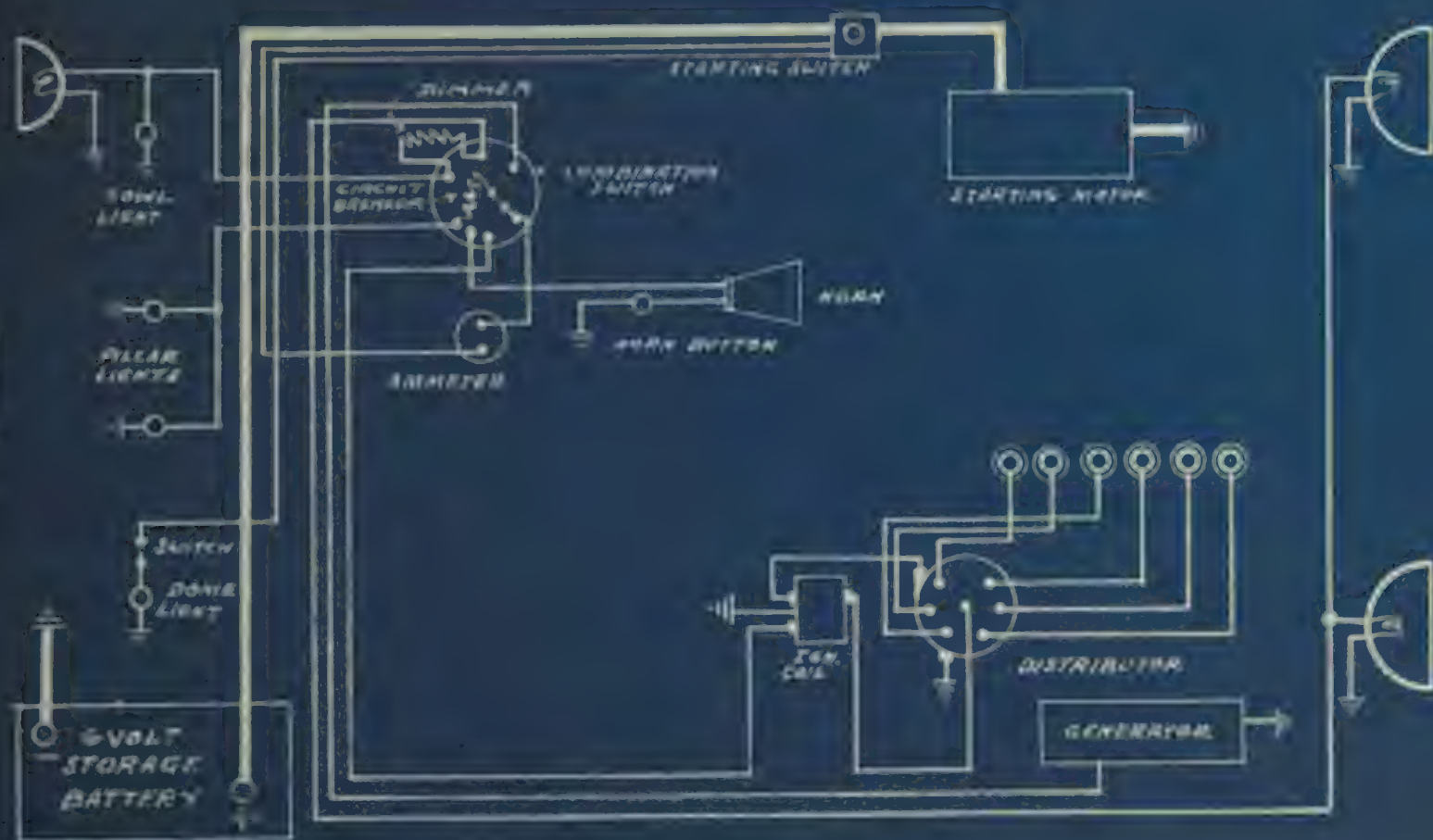
# SAYERS AND SCOVILL 1916 "6"

FROM DELCO MANUAL



*SAYERS AND SCOVILL F 1919-F 1920*  
*DELCO SYSTEM*

FROM PAT. 1,732,042

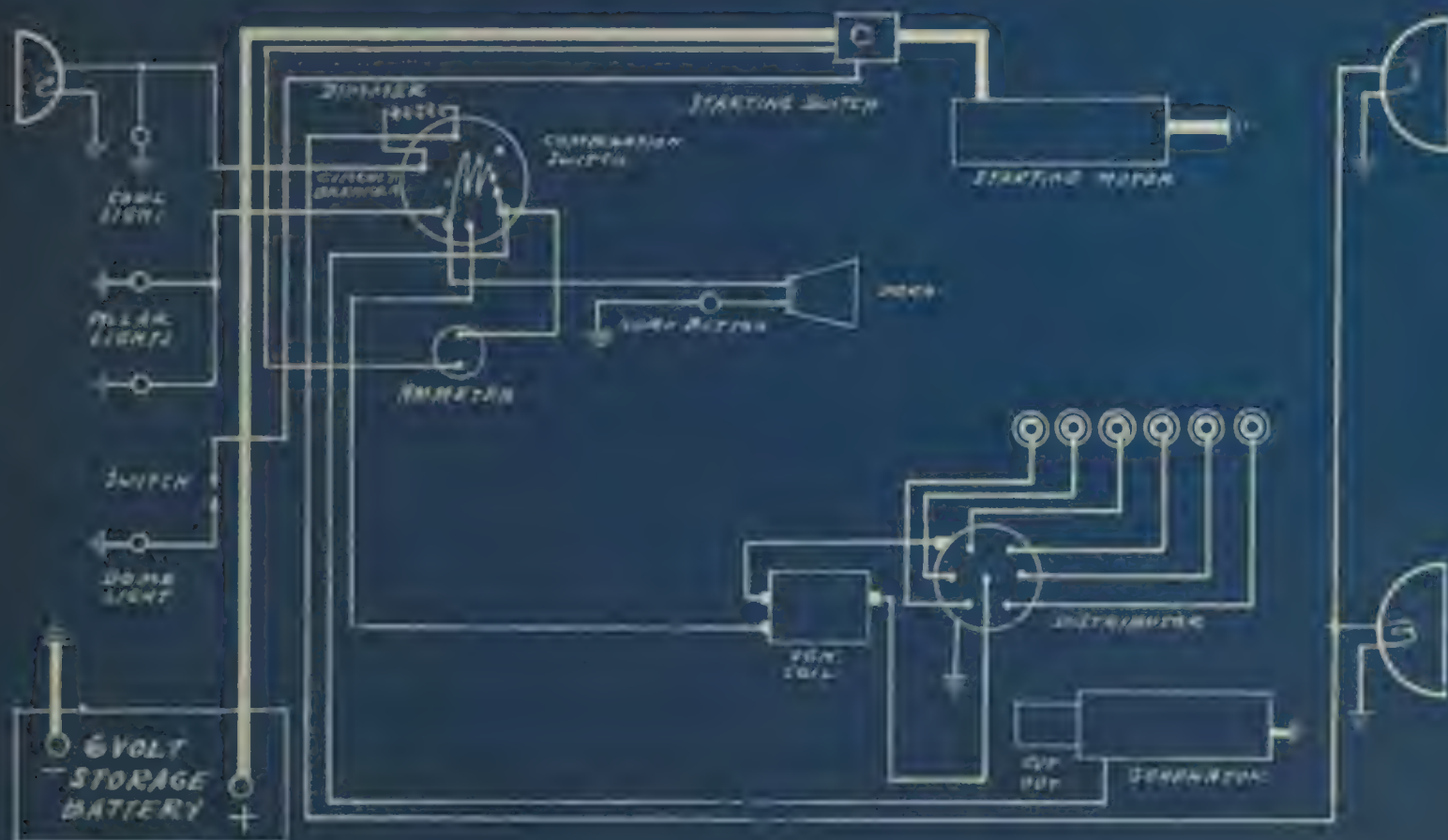






*SAYERS AND SCOVILL 'DP' 1920-21  
DELCO SYSTEM*

FROM MERIDIAN J2221

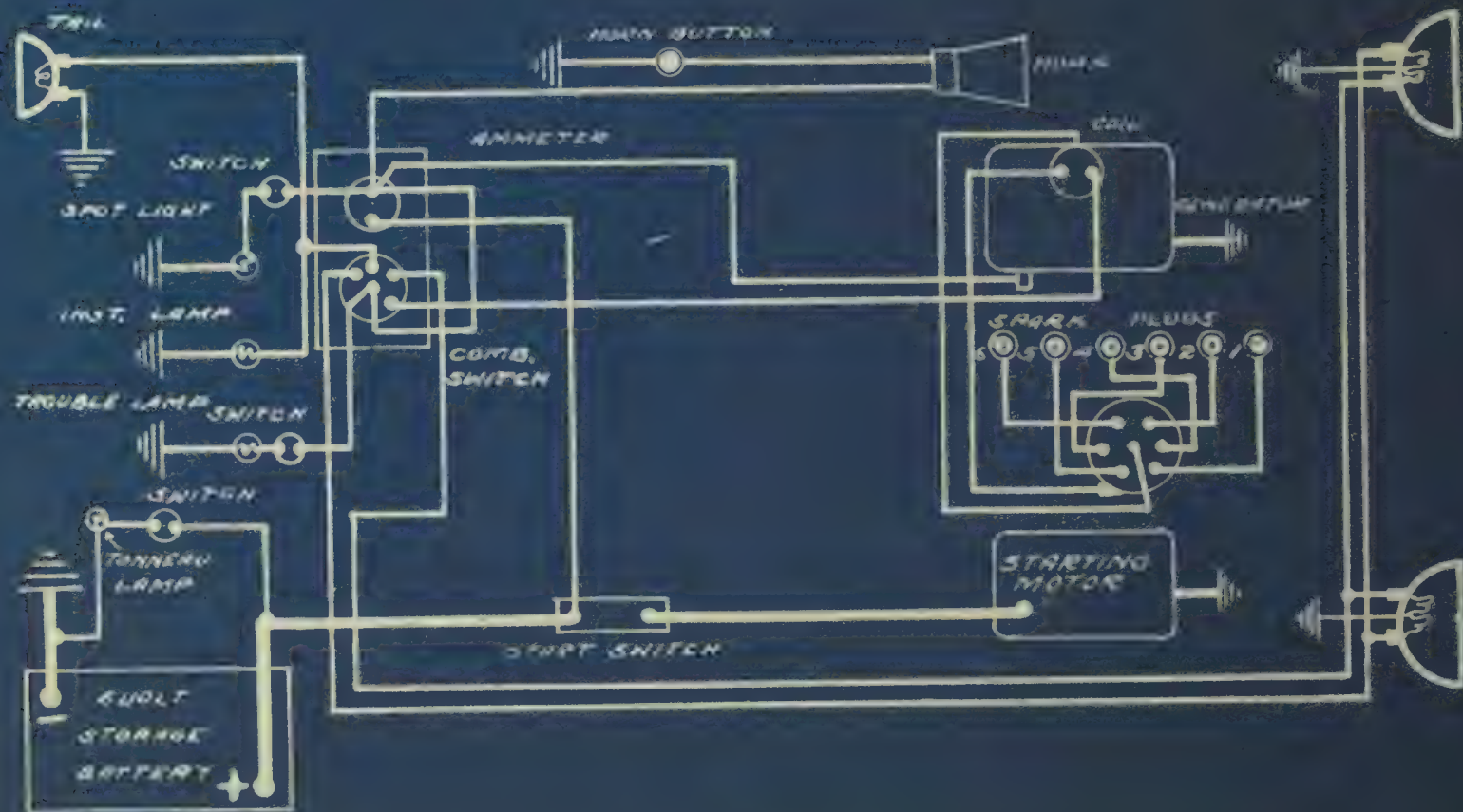


**SCRIPPS-BOOTH**  
REMY SYSTEM

1916

SIX-39 & 40

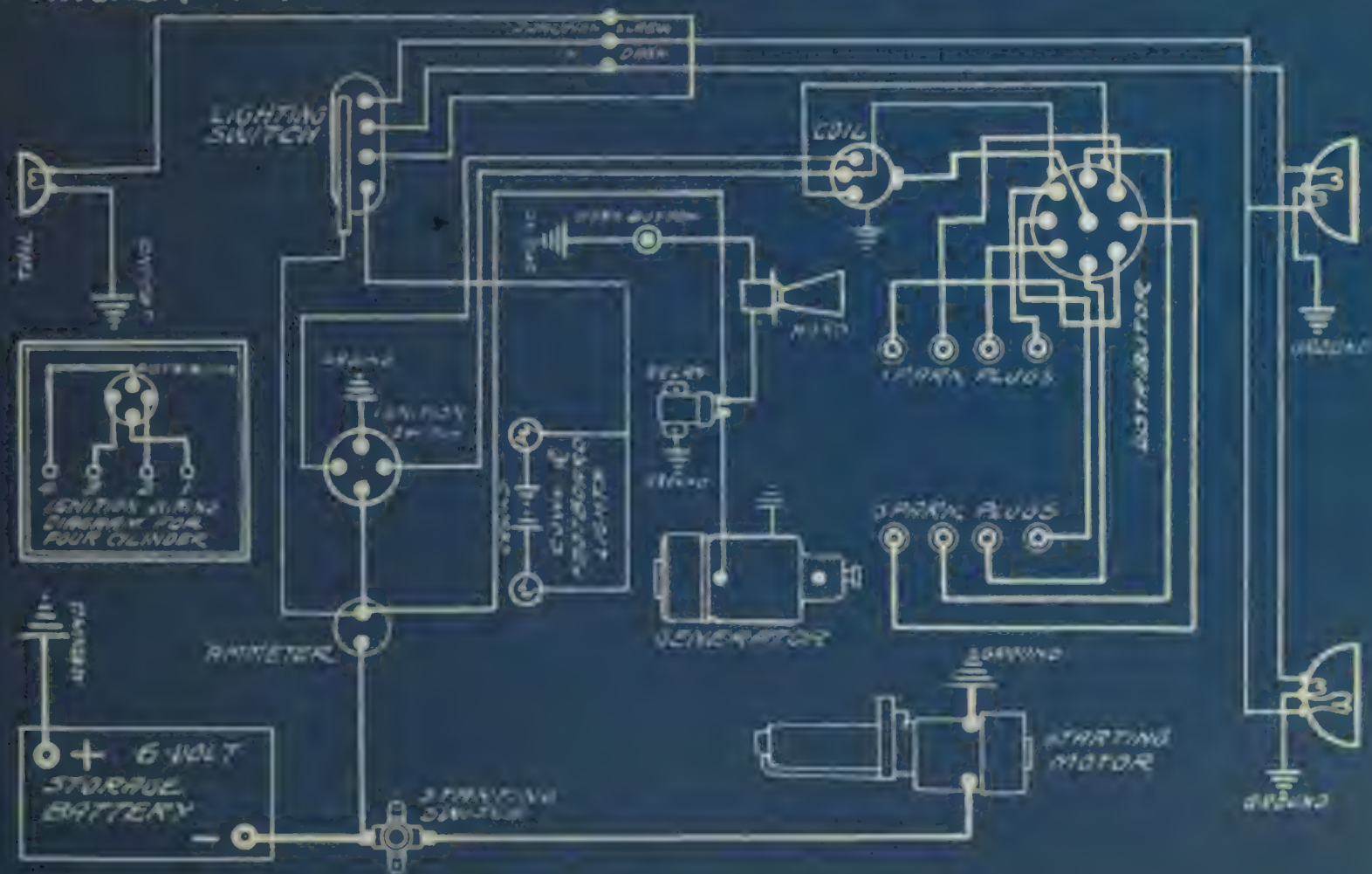
FROM MFRS D.P. 5250.



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Automotive Publishing Co.  
Enclosed U.S. Pat.



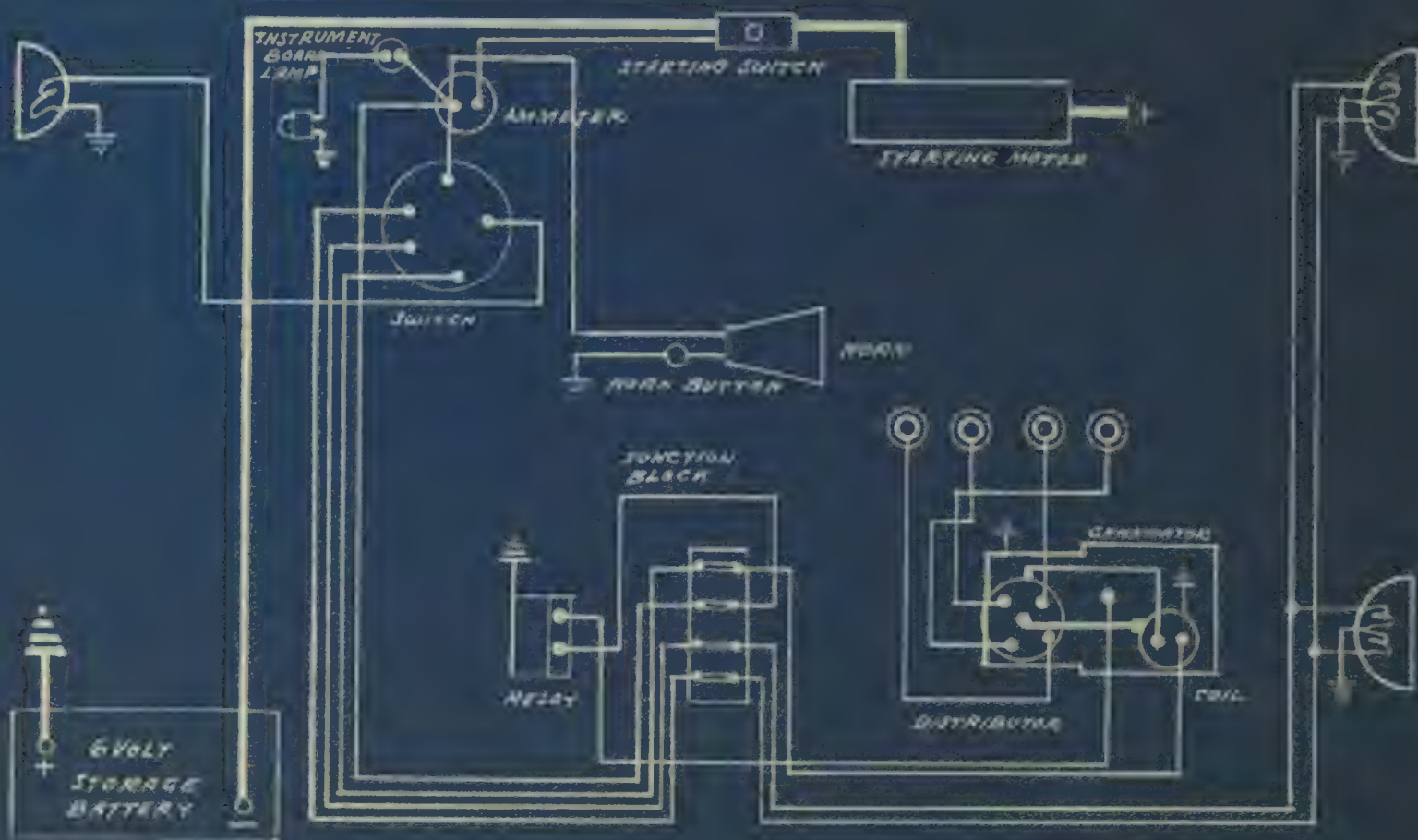
# SCRIPPS-BOOTH 1916-7-8 "C4"-D8"-H" FROM WAG. MANUAL WAGNER SYSTEM



# SCRIPPS-BOOTH MODEL "G" 1918

## REMY SYSTEM

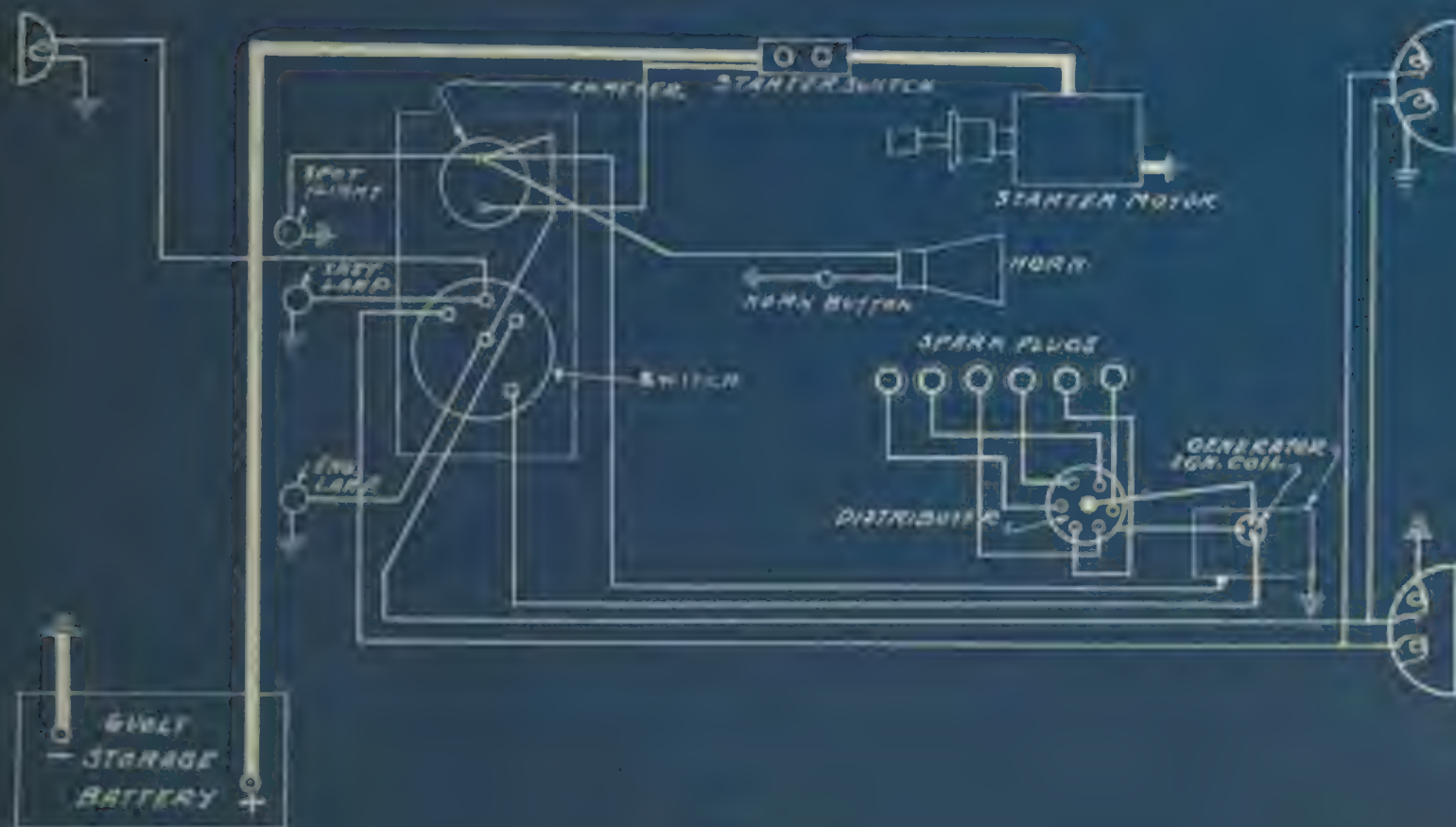
79101 11111, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100



# SCRIPPS-BOOTH 1919 MODELS SIX 39-40

REMY STARTING, LIGHTING AND IGN.

FROM PHOTO BY E. J. B.

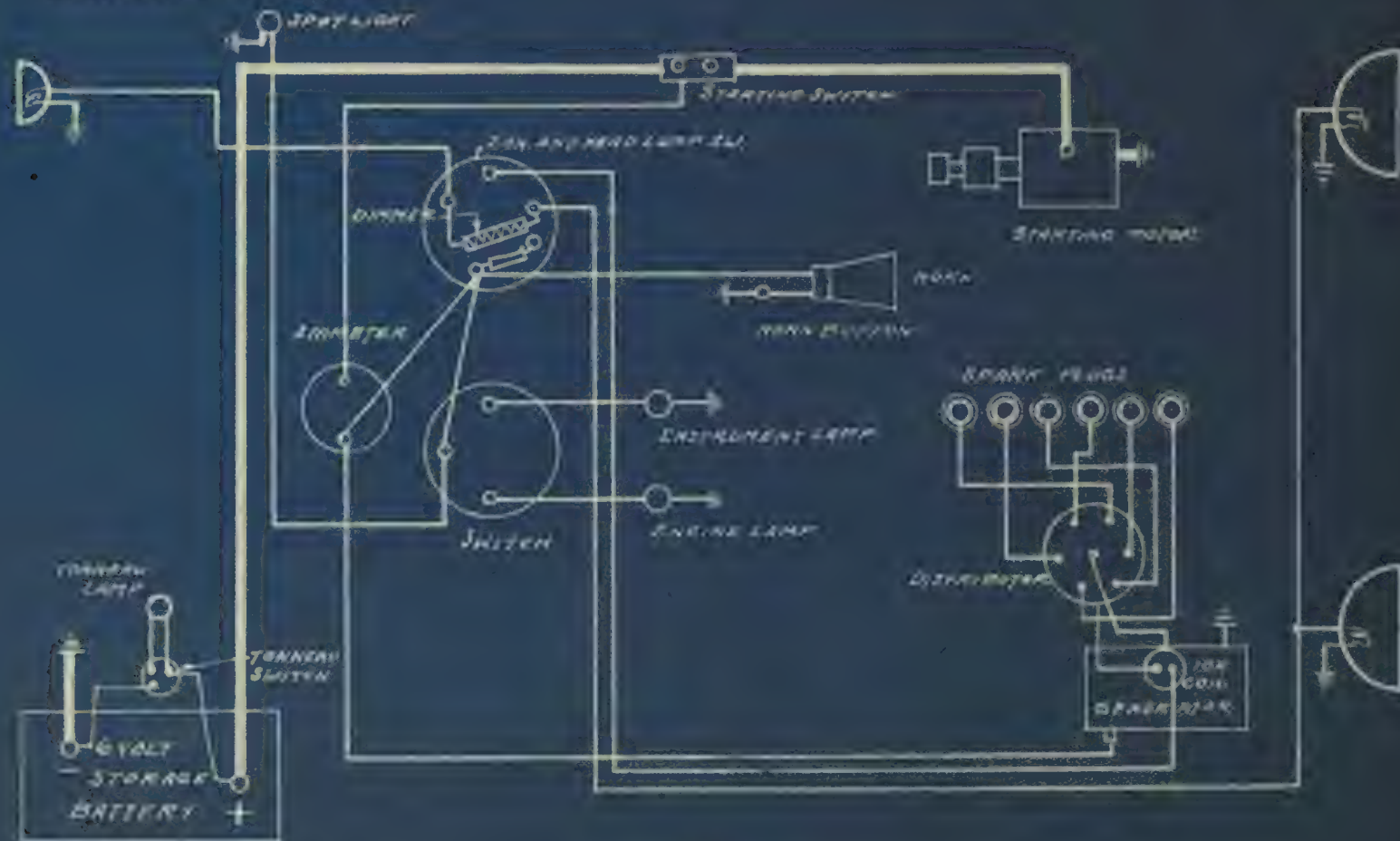




# SCRIPPS-BOOTH 1920 B-39 B-40 (L.H. DRIVE ONLY)

REMY STARTING,  
LIGHTING & IGNITION

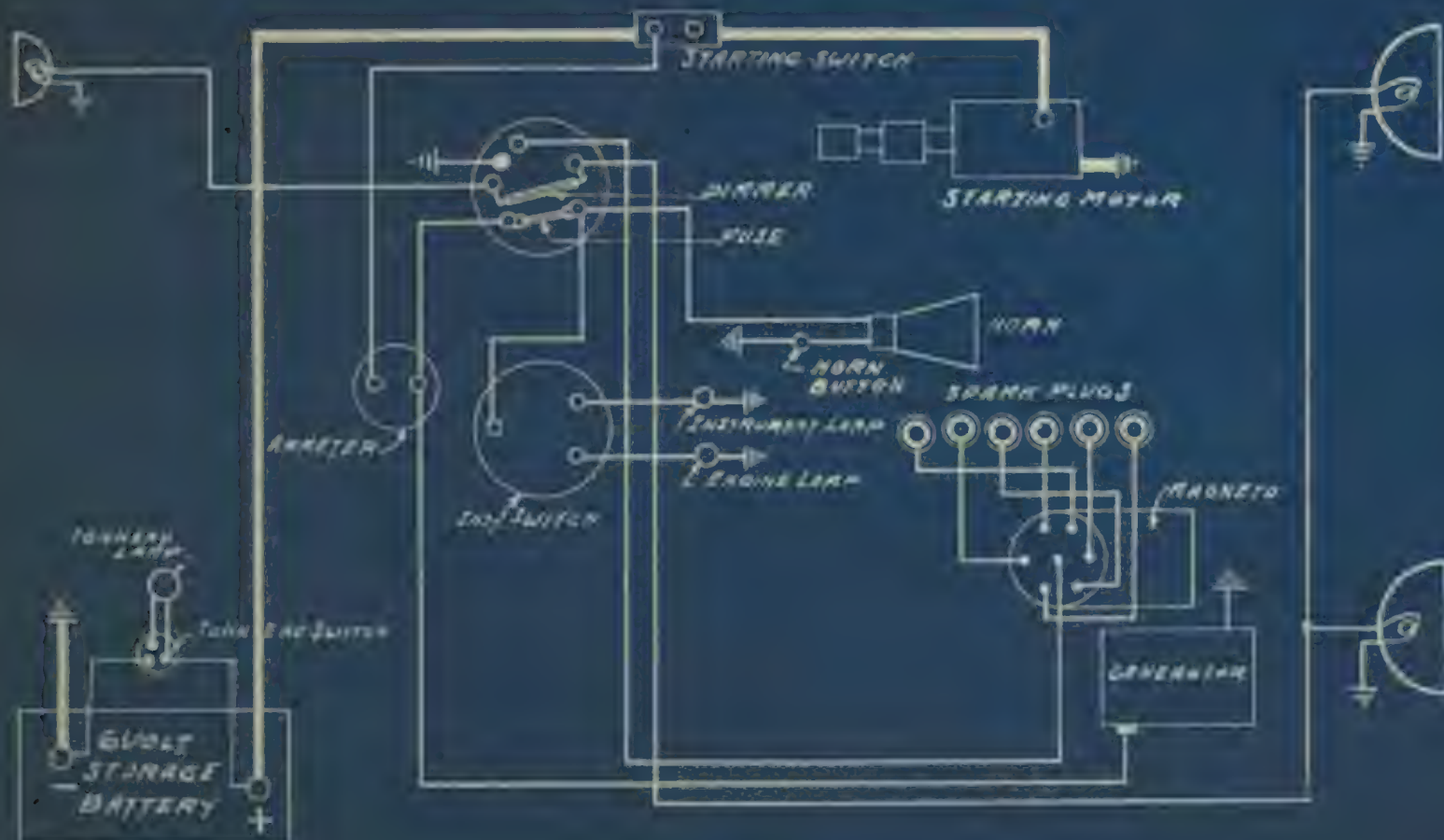
FROM RESS. B.P. 6315



# SCRIPPS-BOOTH 1920 B39-B40 (R.H. DRIVE ONLY).

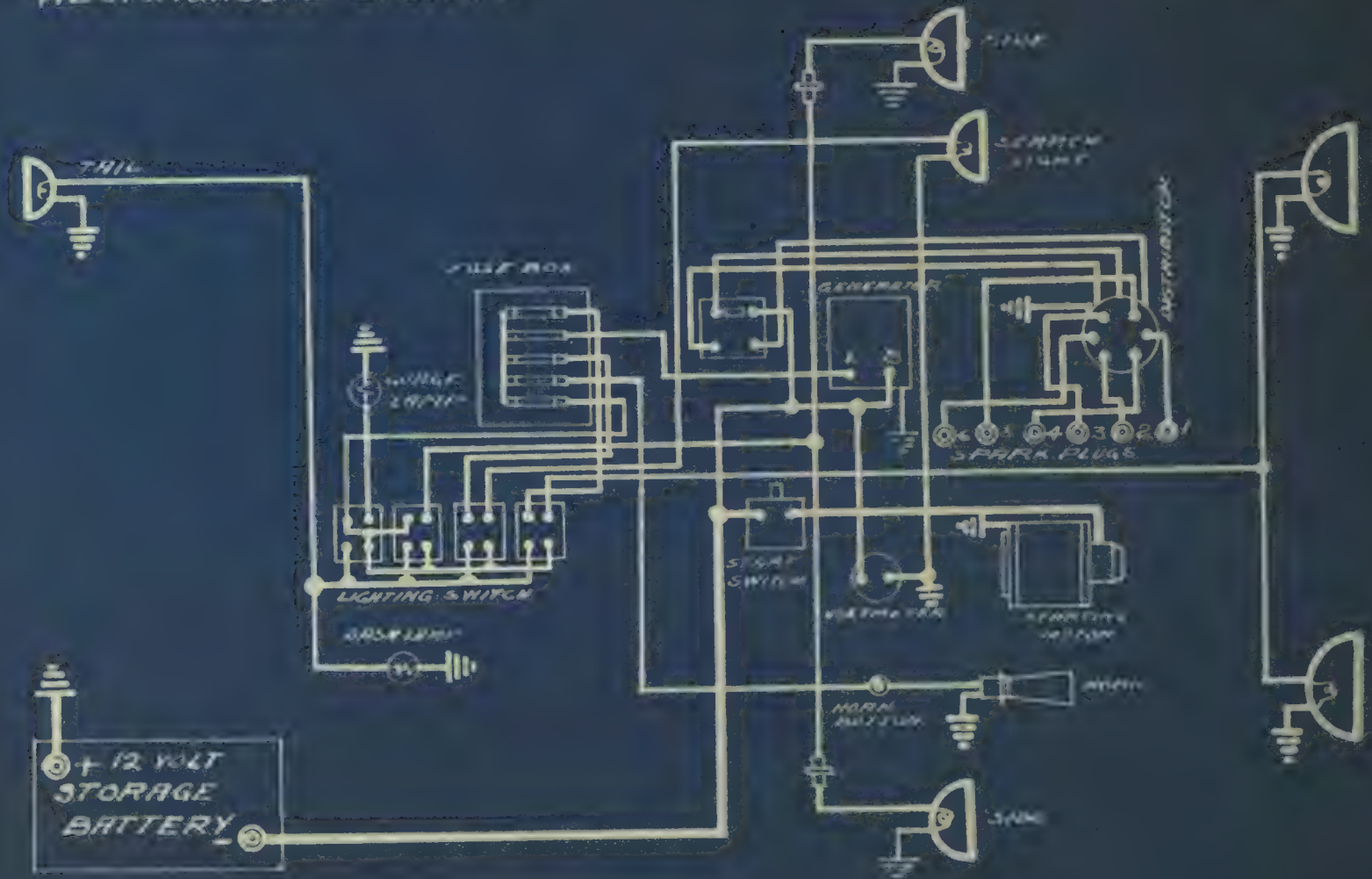
REMY STARTING & LIGHTING BOSCH MAGNETO IGN.

Patented U.S.P. 1535



# SEAGRAVE 1916 6 WESTINGHOUSE SYSTEM

FROM WEST MANUAL



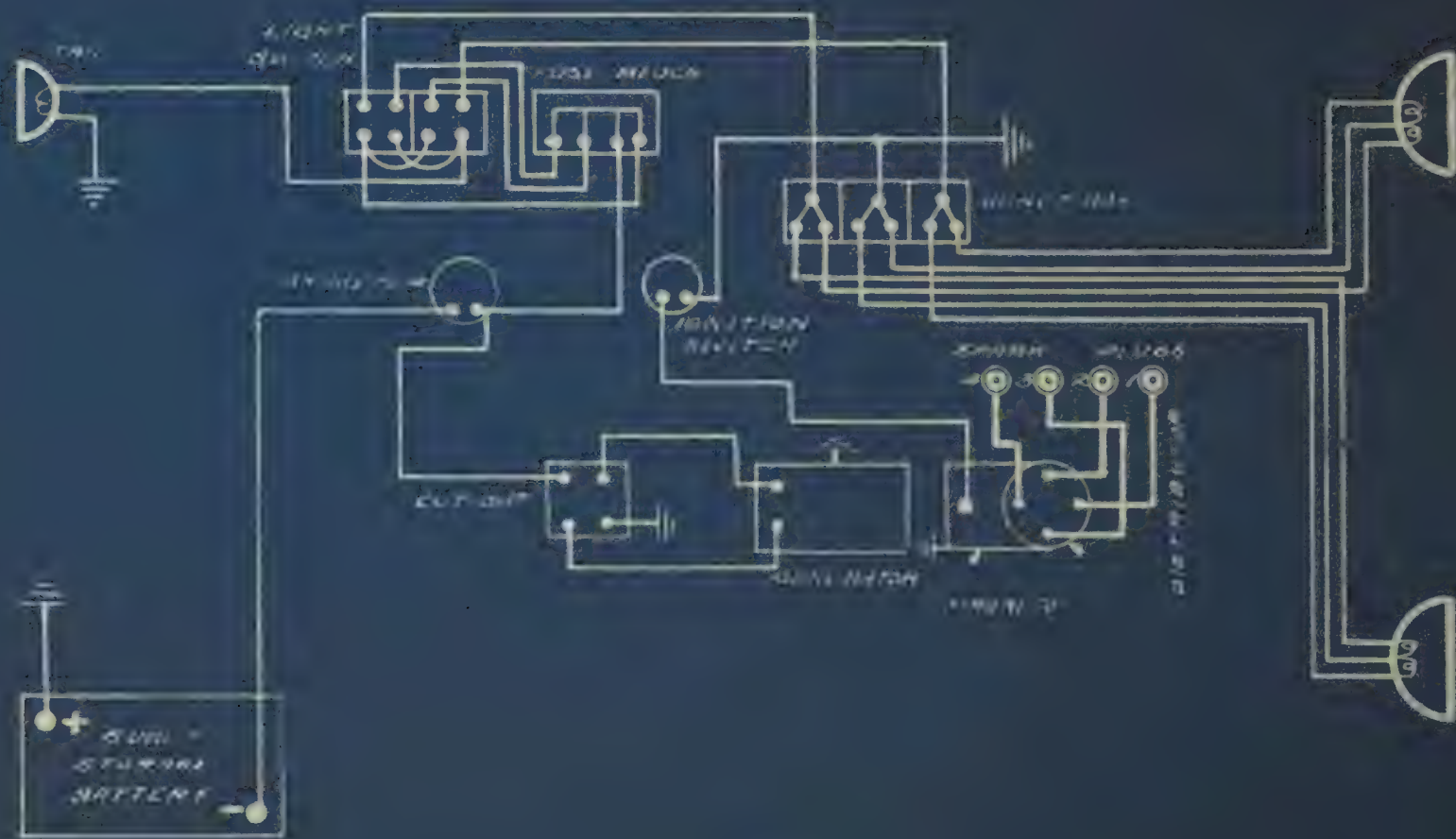




# SERVICE TRUCKS

WIRING DIAGRAM SYSTEM WITH 60 AMP HOUR BATTERY

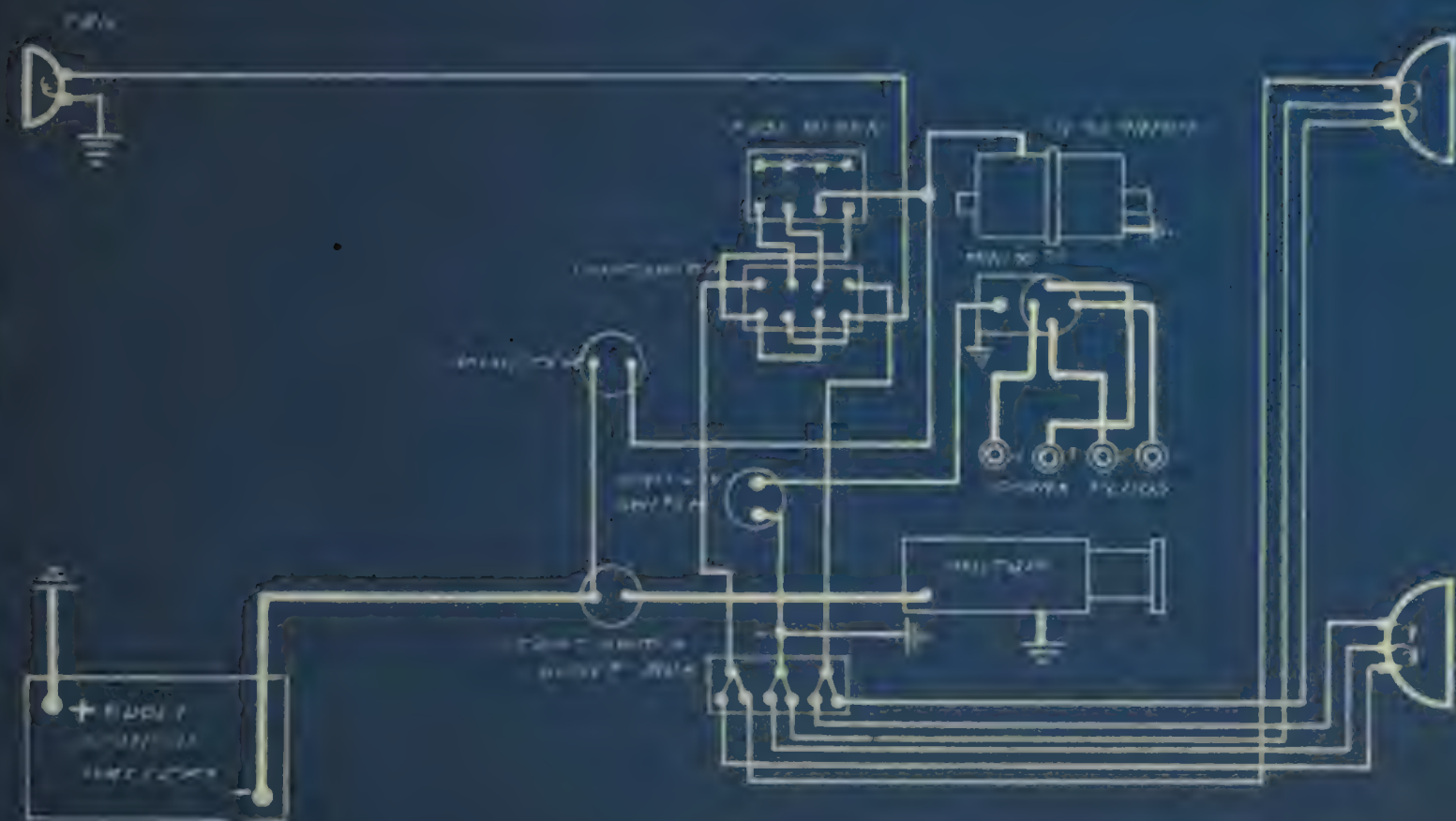
WIRING DIAGRAM SYSTEM



# SERVICE TRUCKS

RECOMMENDED SERVICE INTERVALS: 5000 MILES

1964-1965 1966-1967 1968-1969

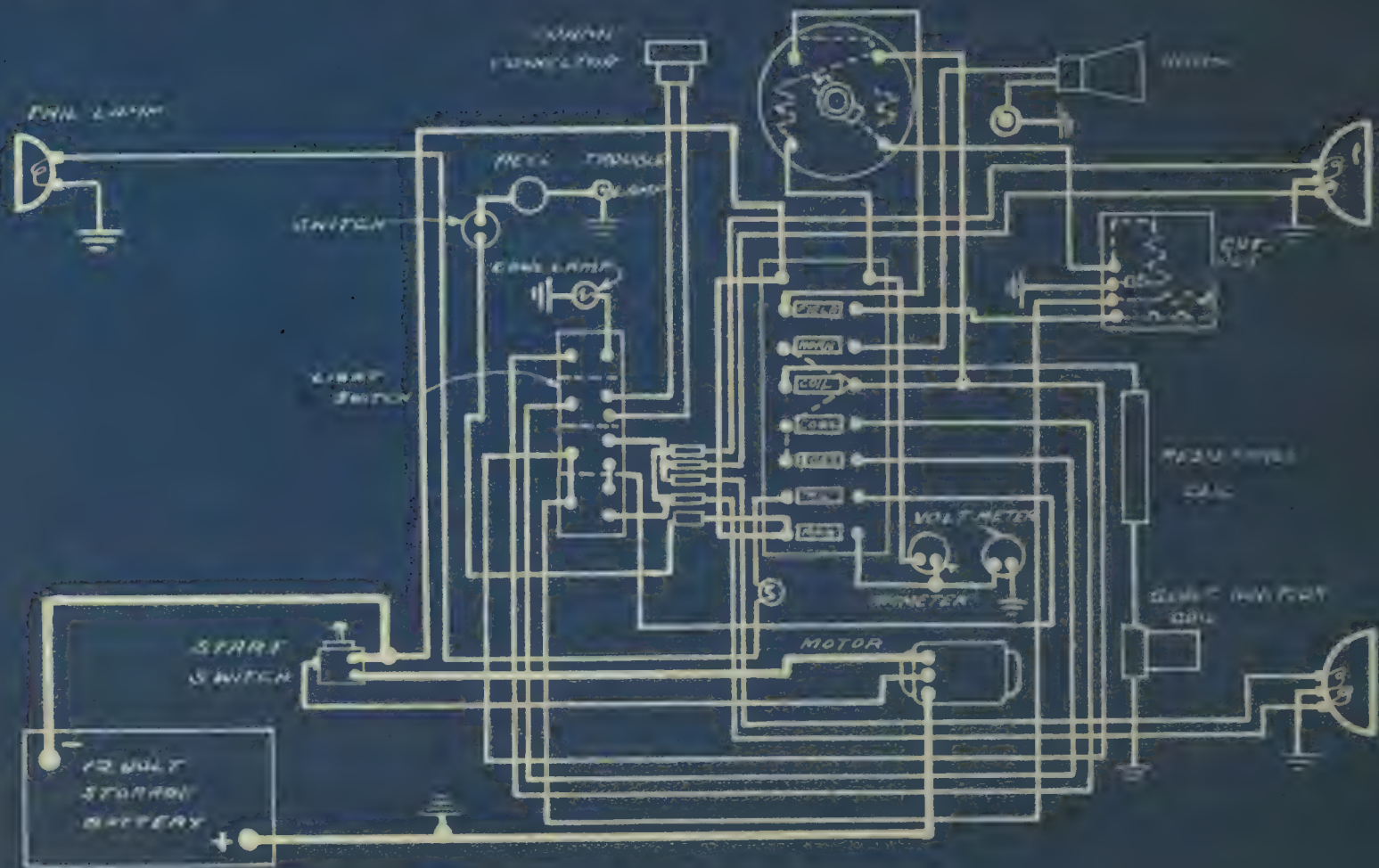




# SIMPLEX MODEL 5 1917

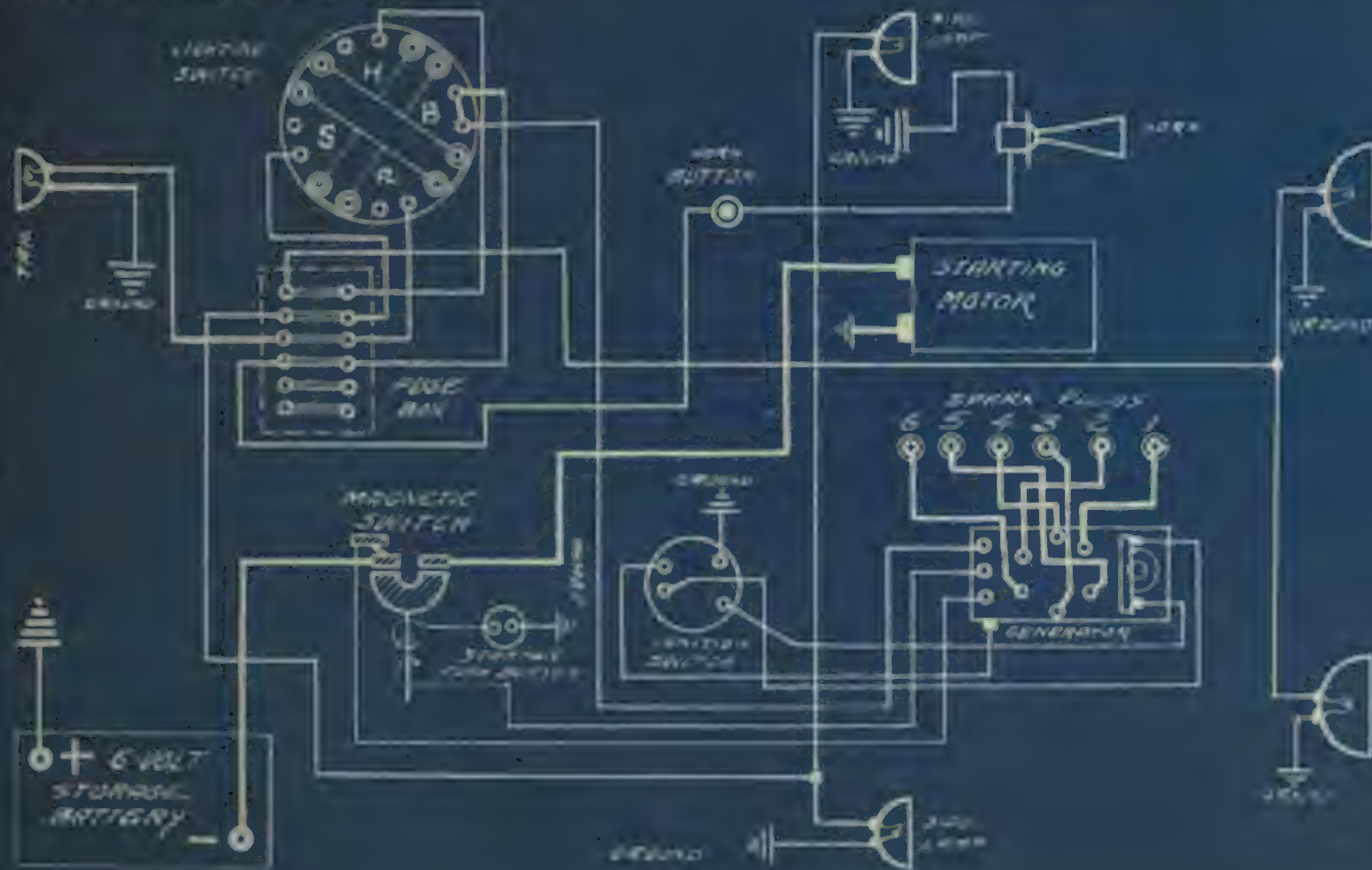
200TH STREET

200TH STREET



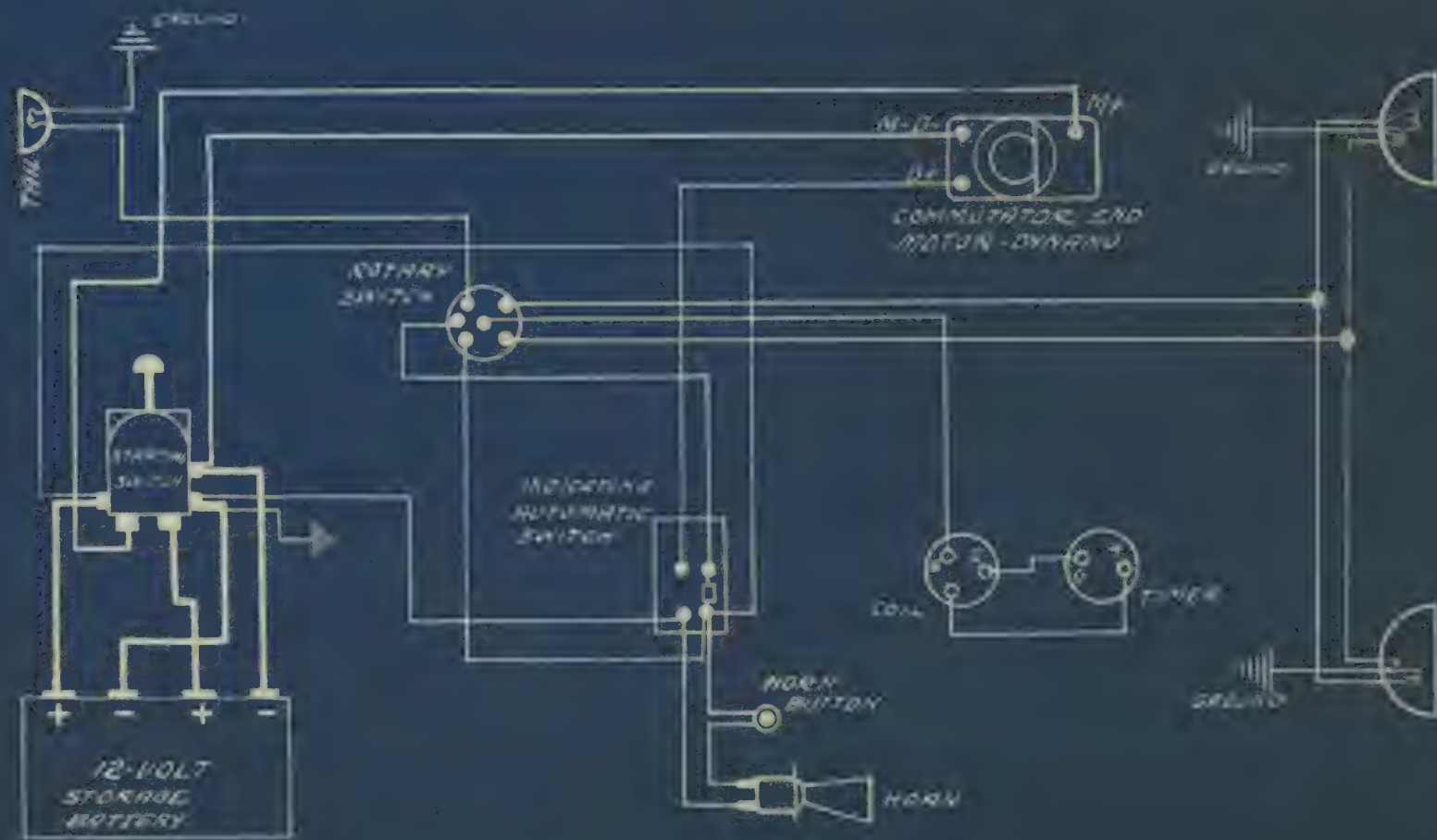
# SPEEDWELL 1914 & 1915 WESTINGHOUSE SYSTEM

FROM WEST. WM-E.D. SK. 38/47



**SPHINX 1915-1916**  
**SPLITDORF-APELCO SYSTEM**

FROM SPLIT-AP MANUAL





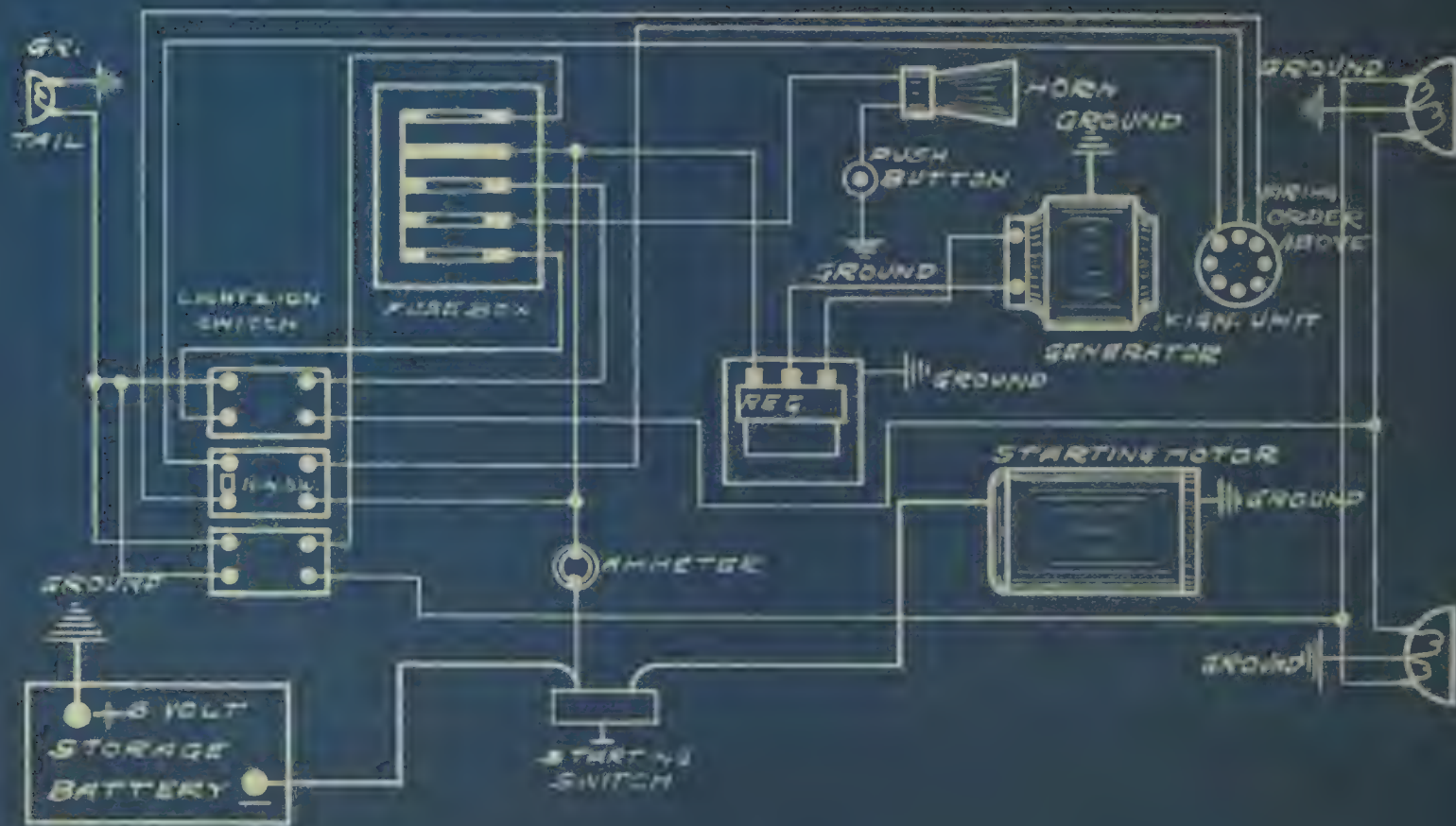


# STANDARD 1916 "8"

WESTINGHOUSE SYSTEM

FROM WEST PLATE 104

FIRING  
ORDER 1R-1L-2R-2L-4R-4L-2R-2L



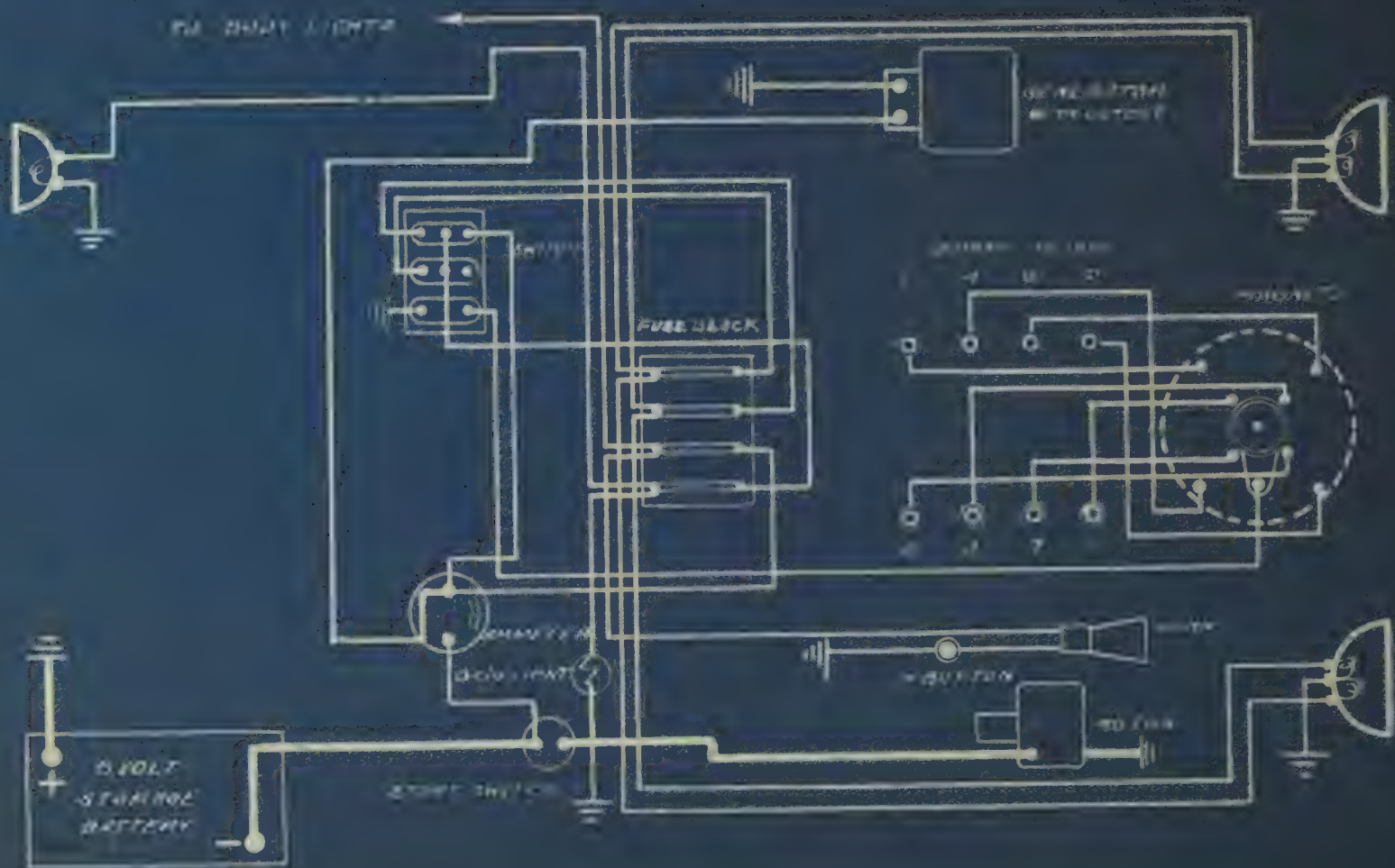




# STANDARD MODEL "F" 1917

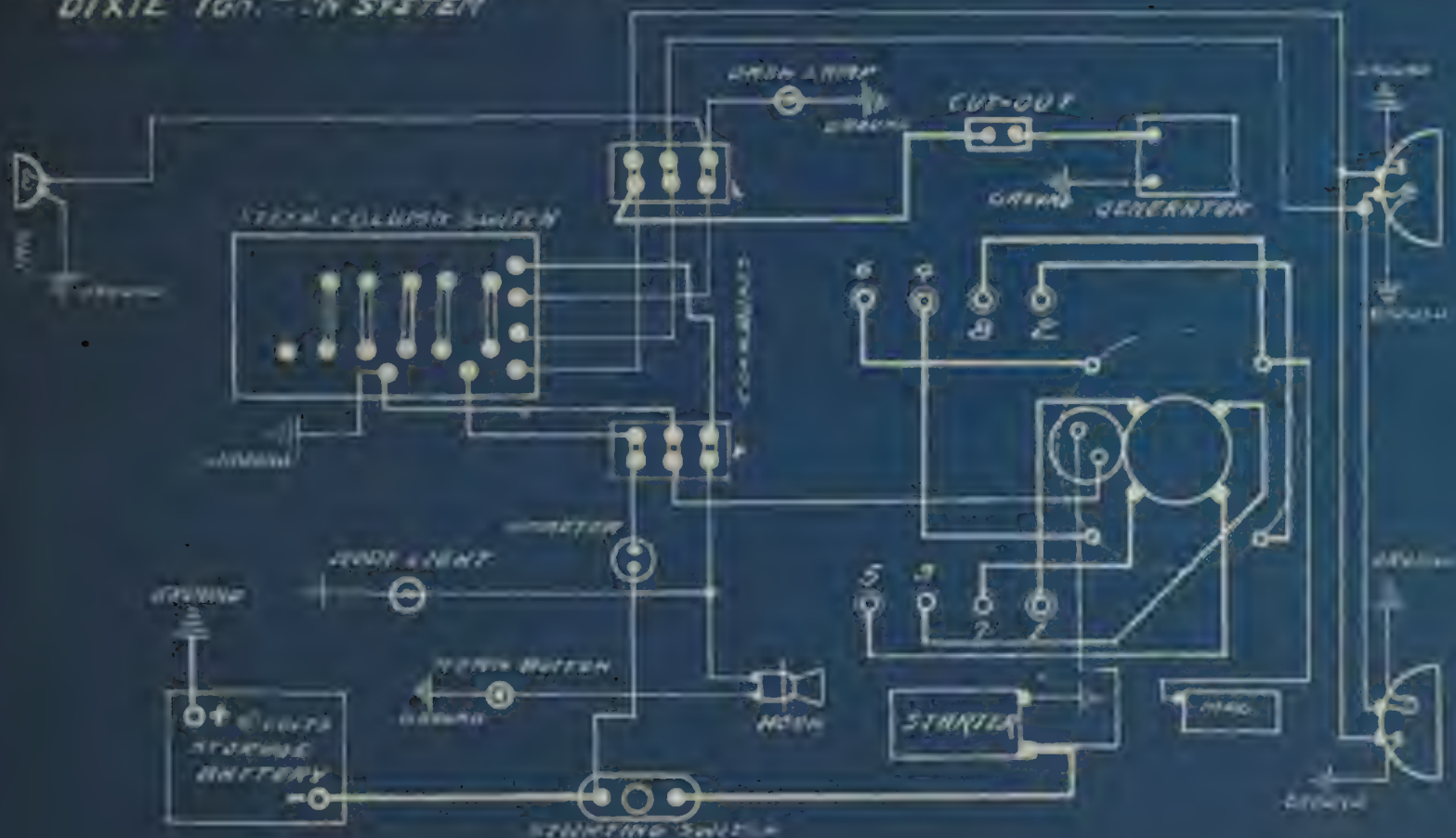
WIRELESS SWITCH - DIKIC MAG. IGNITION

FIGURE 10-10, 1917



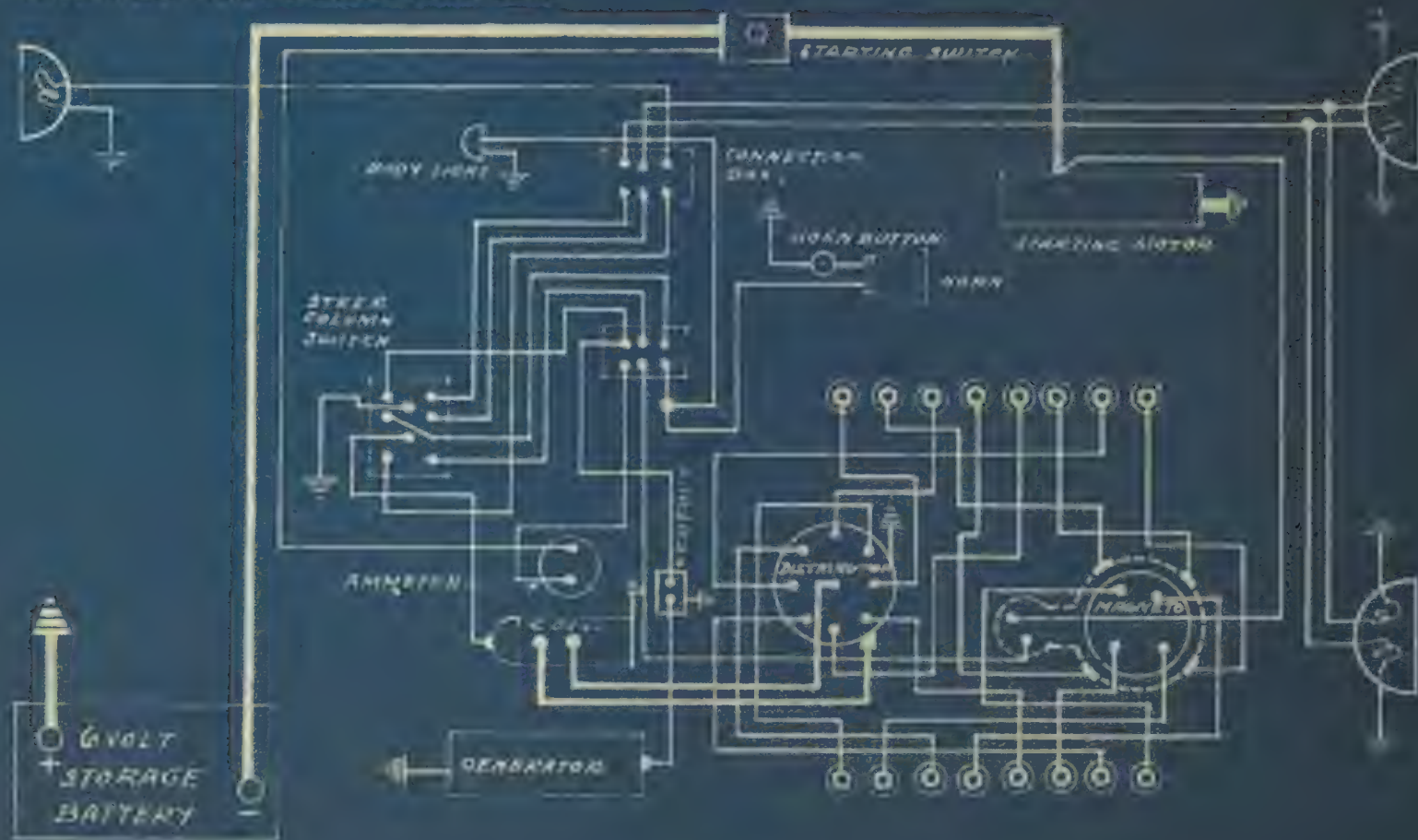
STANDARD 1918-1919 MODEL "G"  
 WESTINGHOUSE STARTING & LIGHTING SYSTEM  
 DIXIE IGNITION SYSTEM

TRANSFORMER: 3A H-2725



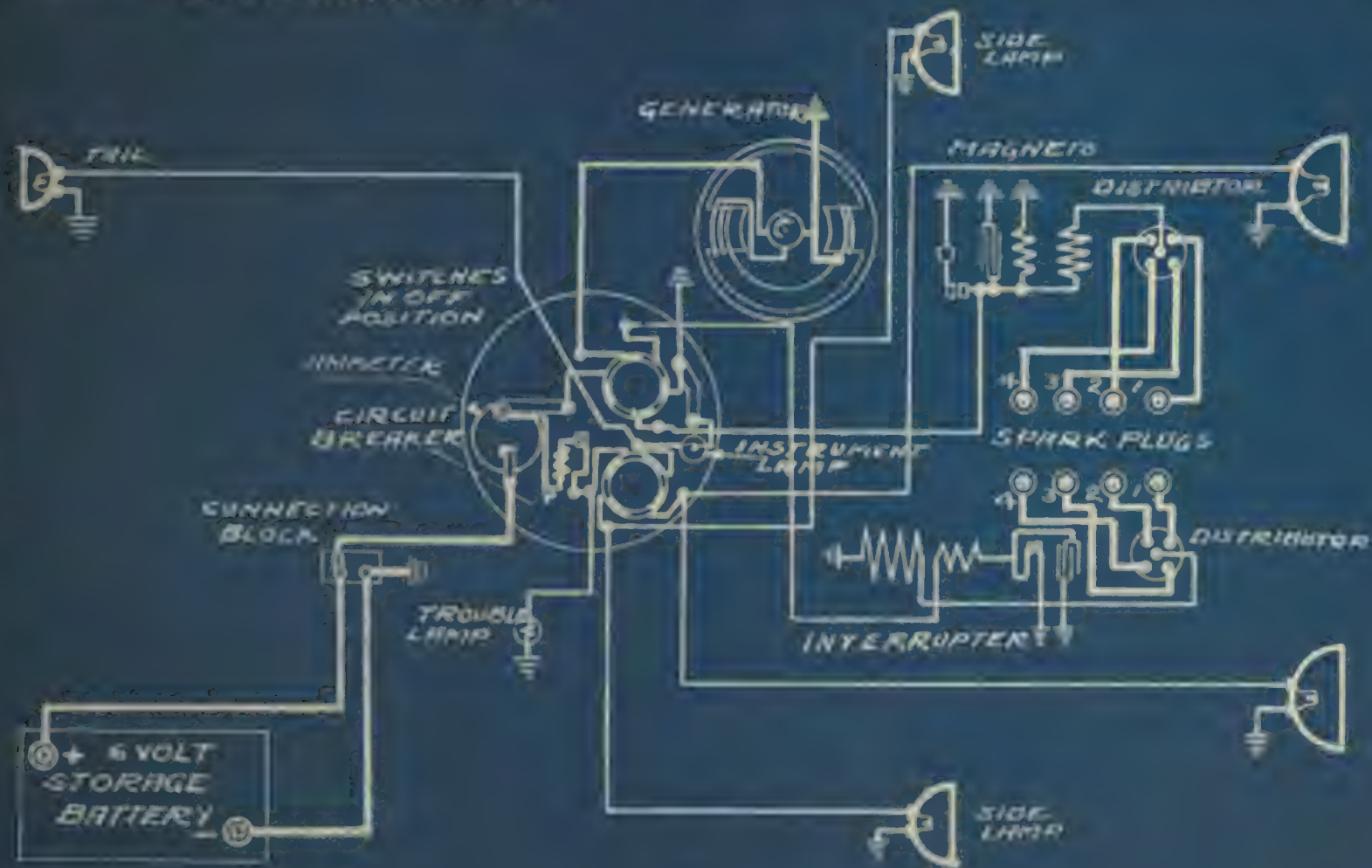
STANDARD MODEL "H" 1919-1920  
 WESTINGHOUSE START & LIGHT  
 AT WATER-KENT & DIXIE MAG. IGN.

24079 APR 2 1920





**STANDARDIZED MILITARY TRUCK - CLASS B** FRONT ENGINE HANDBOOK  
 DELCO - EISEMANN MAGNETO



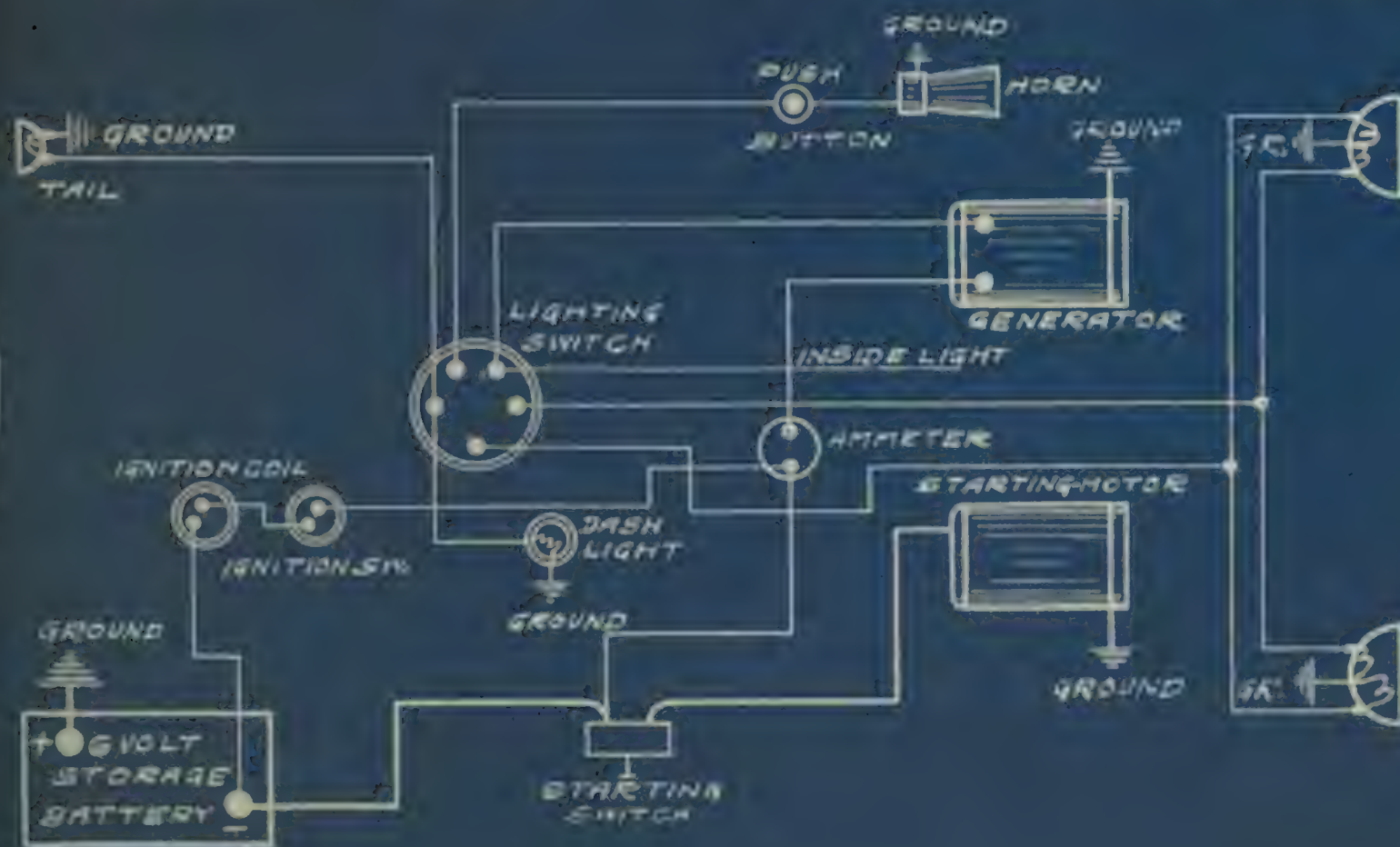


# STEARNS-KNIGHT 1914

WESTINGHOUSE SYSTEM

"4"

FROM WEST. PLATE 105

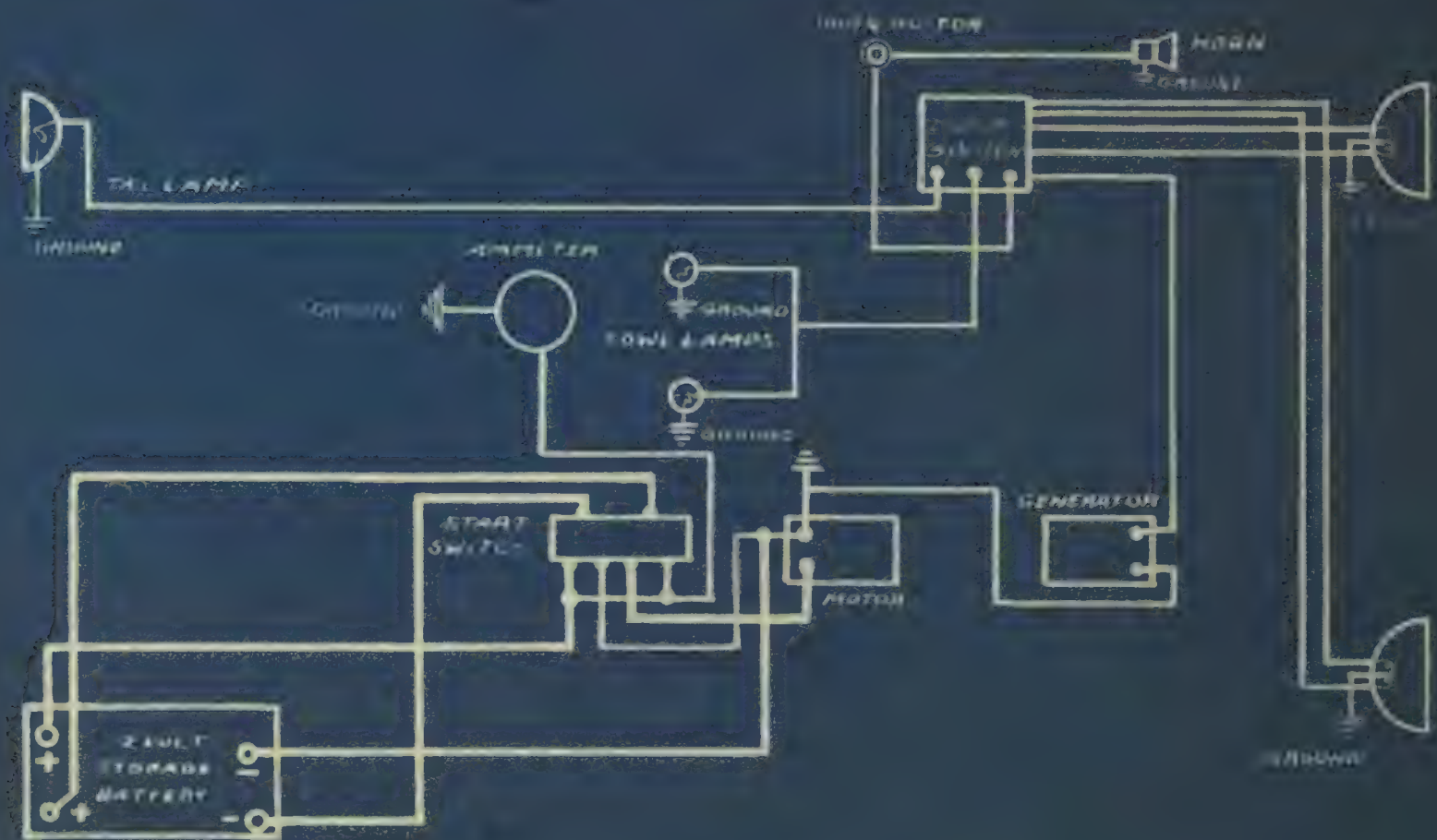




# STEARNS-KNIGHT "LIGHT FOUR" 1915

GRAY AND BAKER SYSTEM

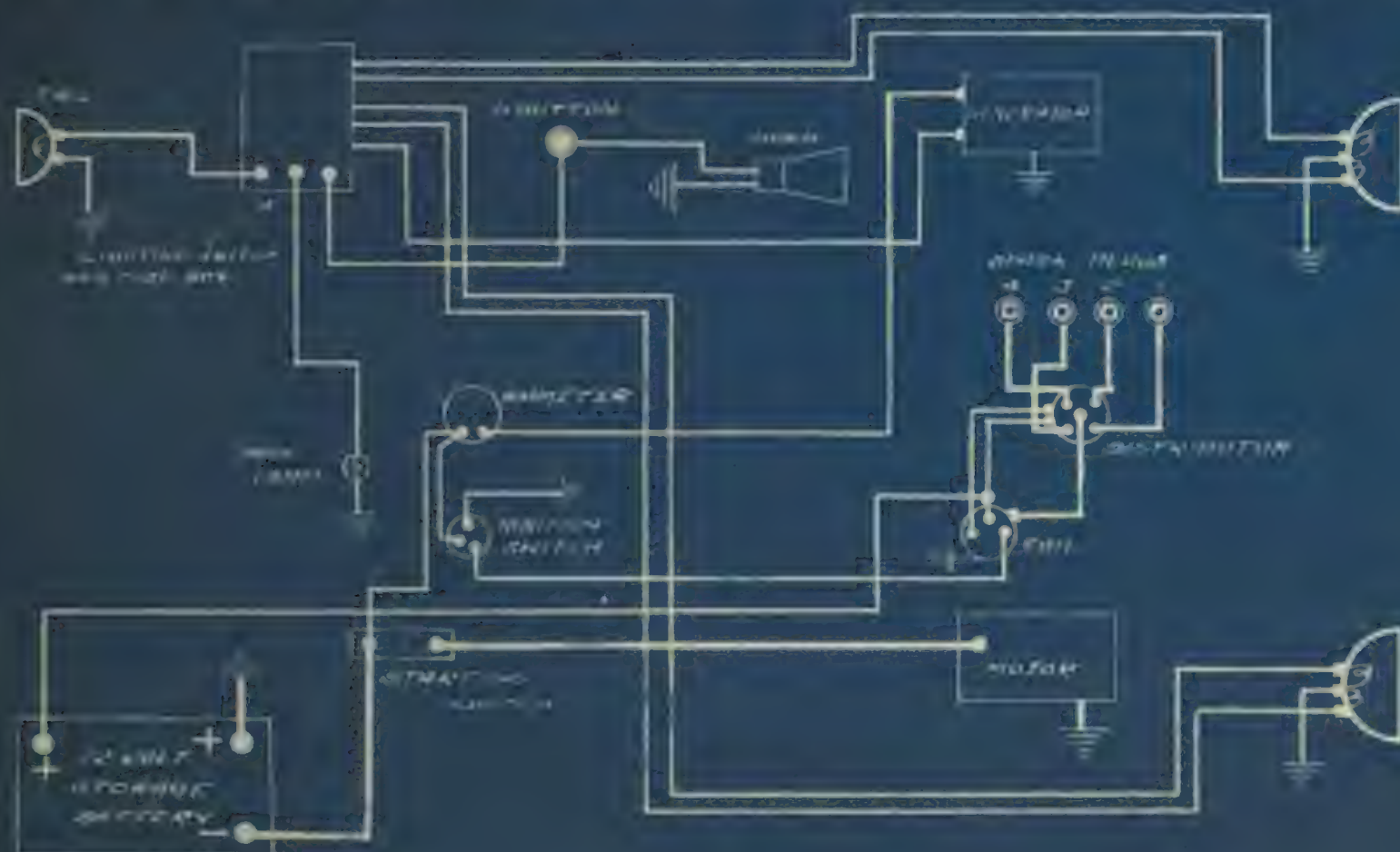
FIGURE 1000000 100



# STEARNS-KNIGHT 1915-16-17-18-19. SERIES 32

WESTINGHOUSE SYSTEM-REMY IGN.

FROM S-K INST. BN.



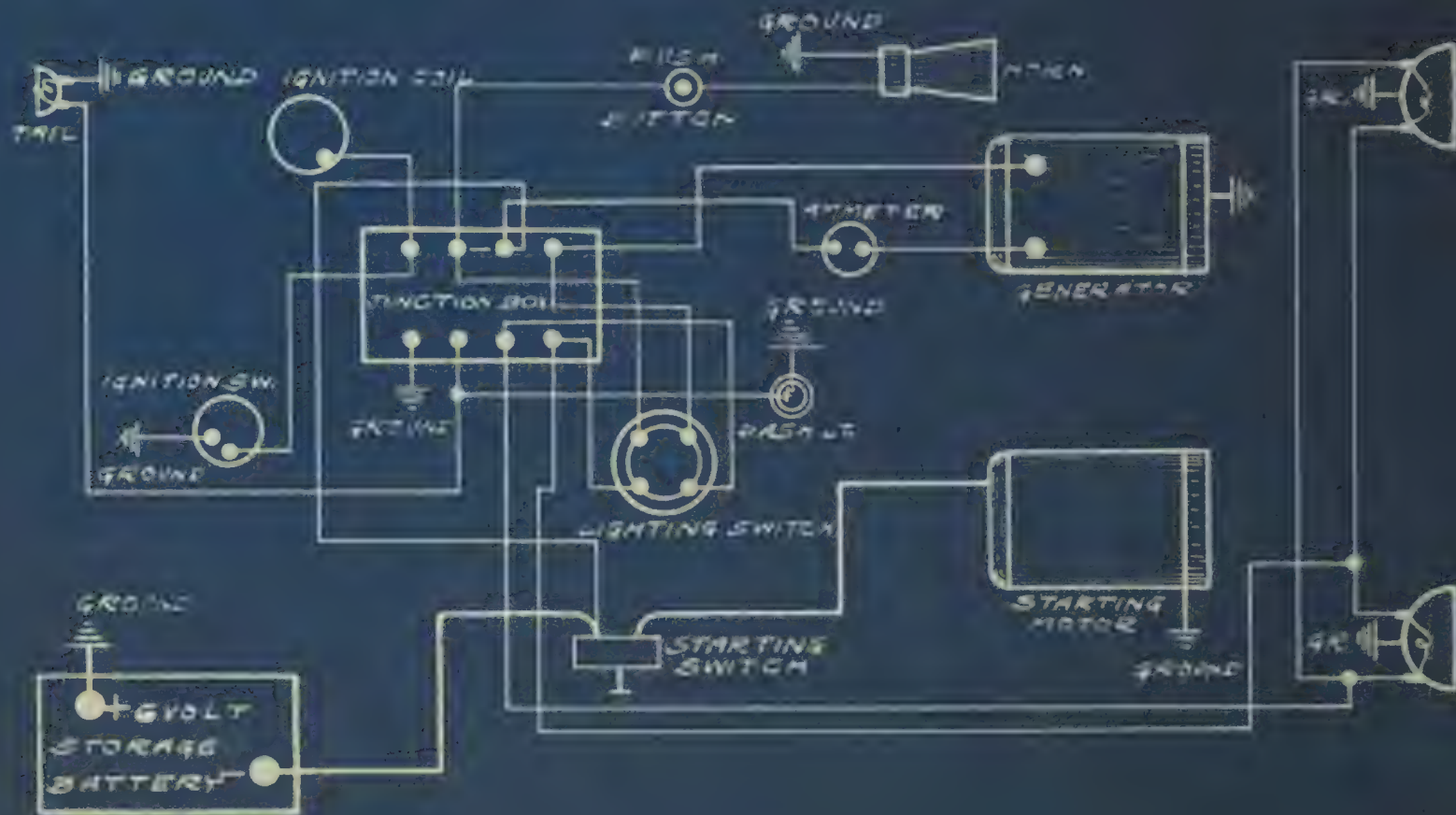
# STEARNS-KNIGHT

WESTINGHOUSE SYSTEM

1916

8"

FROM WET-PLATE 106





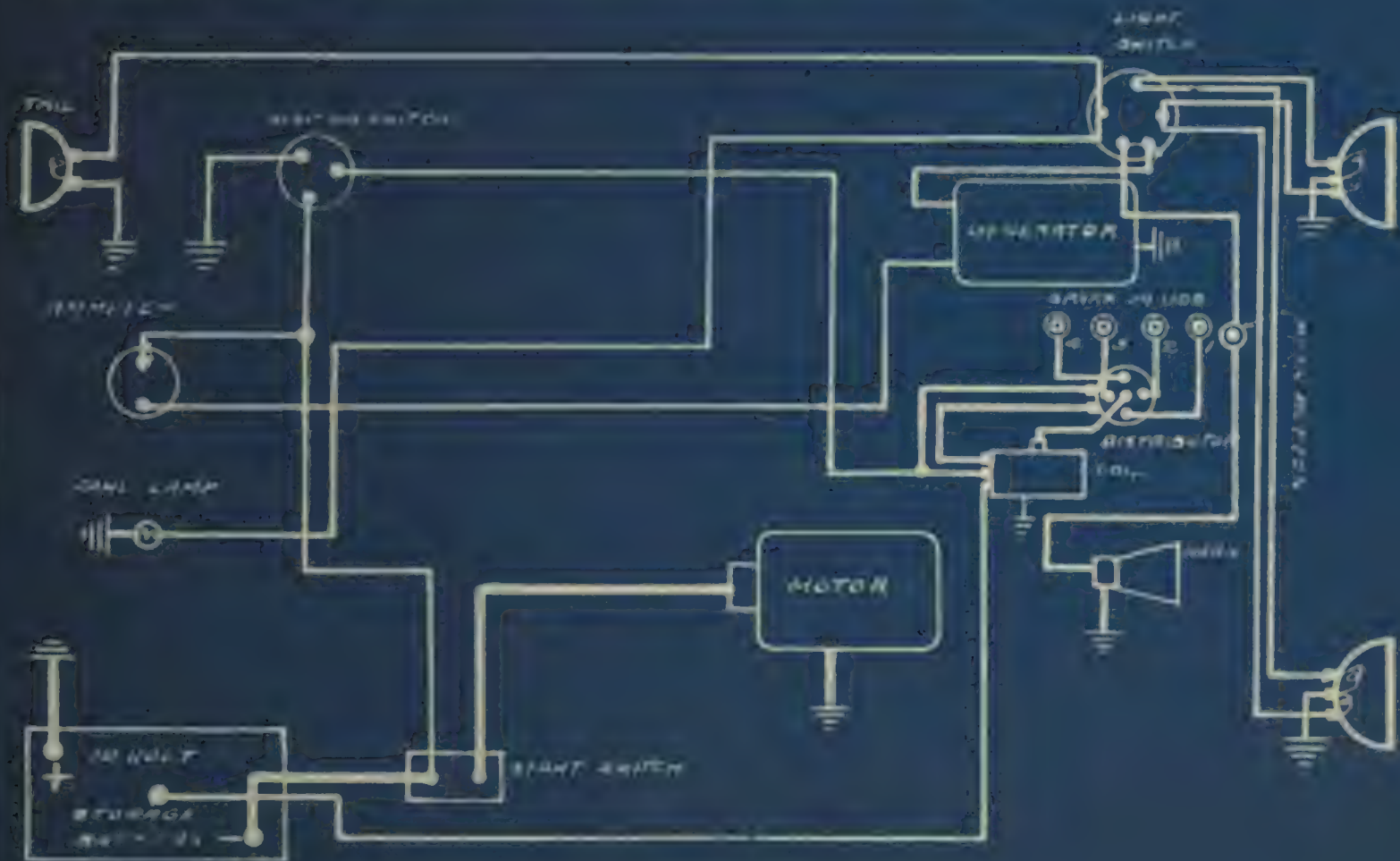
**STEARNS-KNIGHT**

**MODEL SKL-4**

**1916-1917**

WIRING DIAGRAM FOR SYSTEM  
WITH GENERATOR AND BATTERY

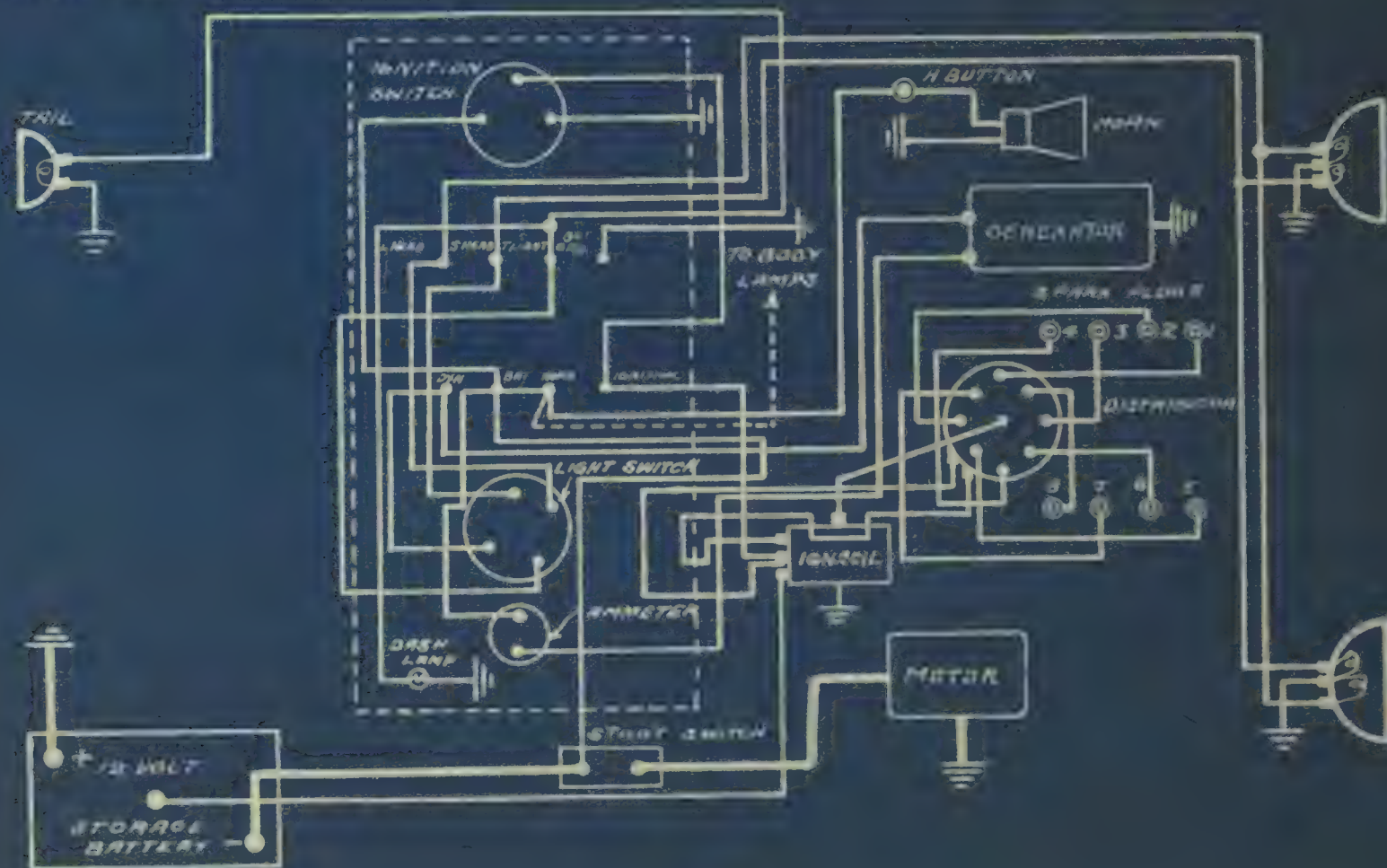
FIG. 1000 (P. 4-12)



Online 4/2/05, 8:00 AM - 10:00 AM

Online 4/2/05, 8:00 AM - 10:00 AM

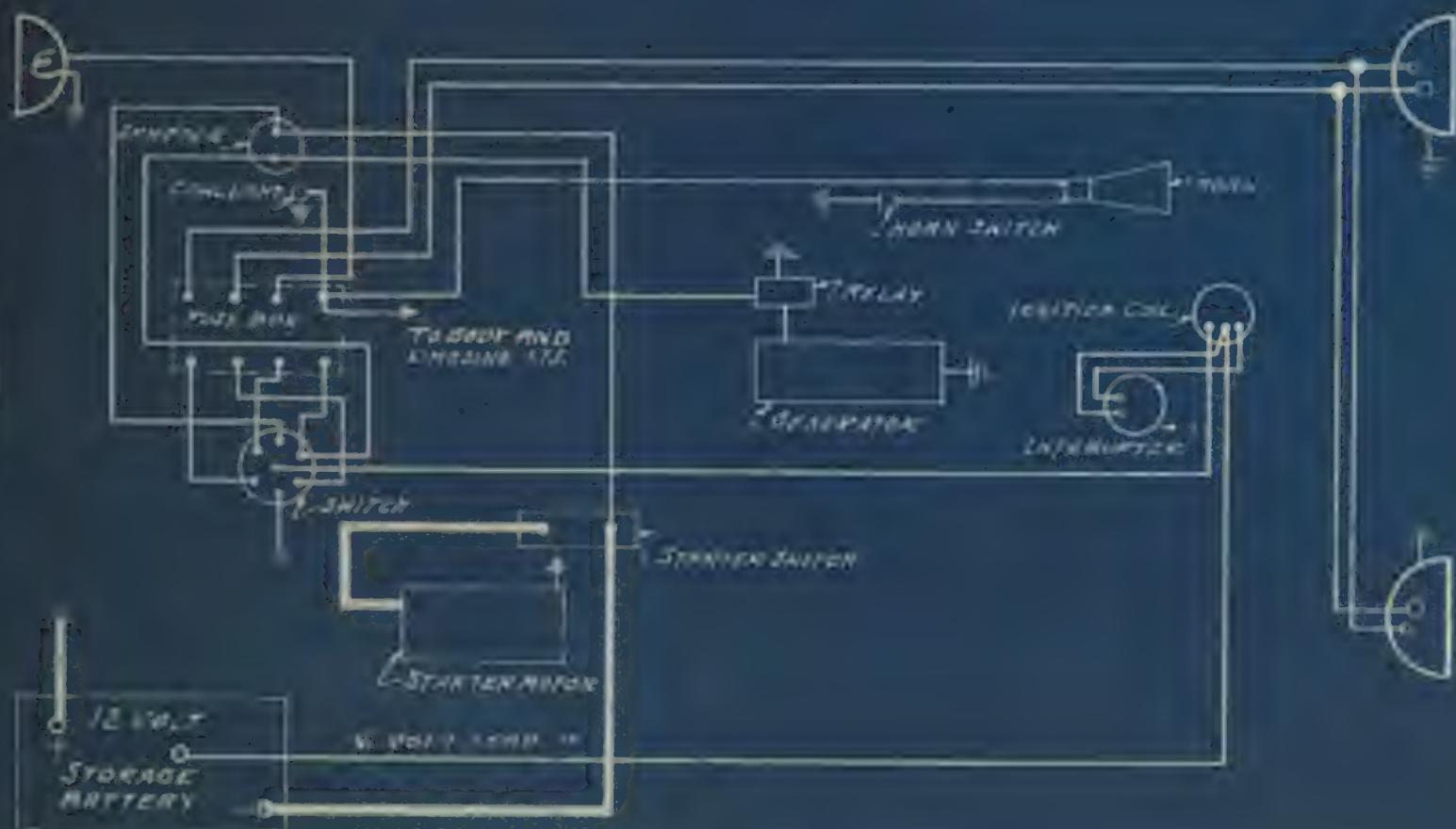
Online 4/2/05, 8:00 AM - 10:00 AM



# STEARNS-KNIGHT "SKL4" 1918-1919

## REMY STARTING, LIGHTING AND IGNITION SYSTEM

FROM RECYCLED PAPER

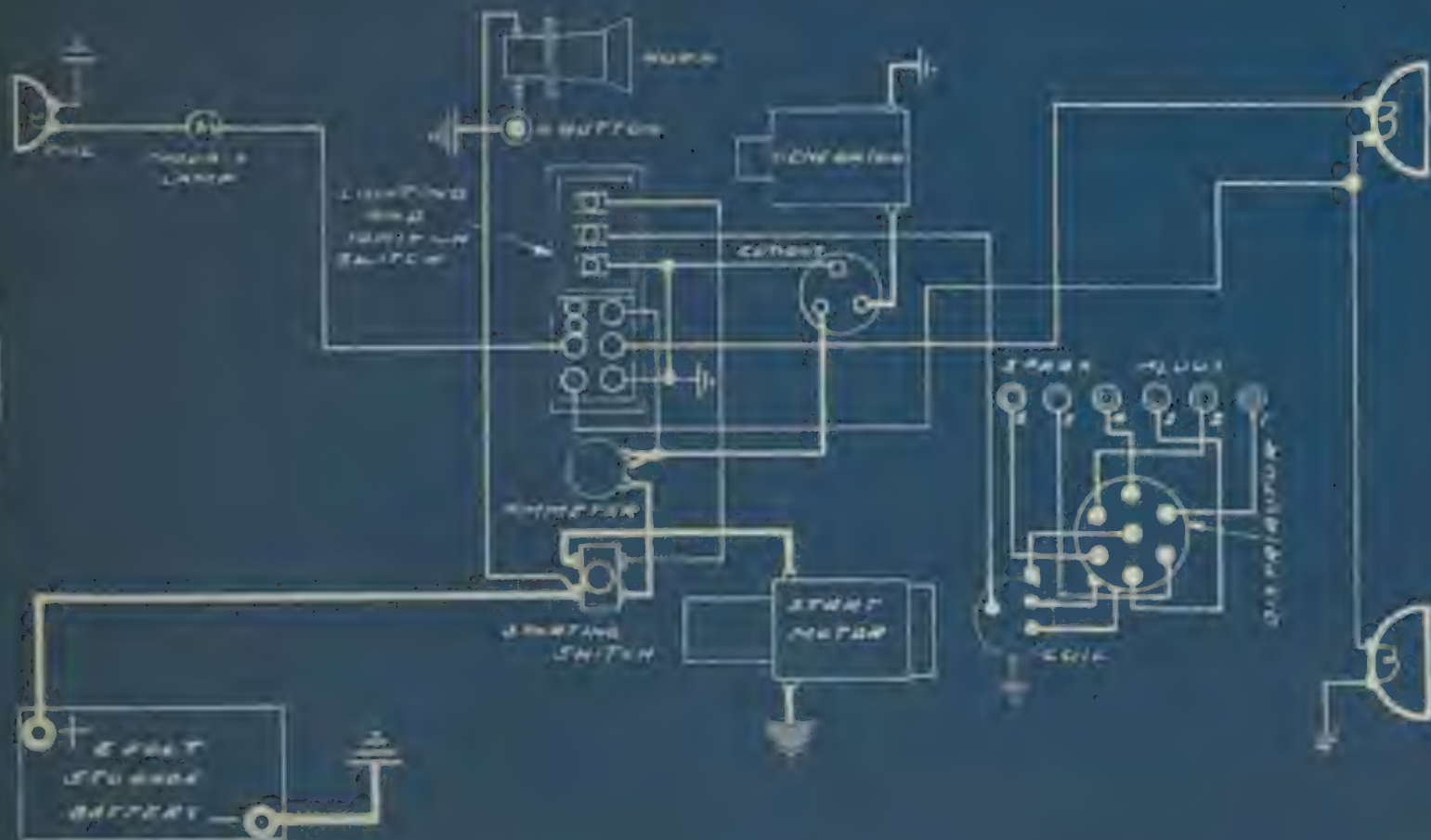






# STEPHENS 1917 "65" ROTOLITE SYSTEM

FROM HERE ON



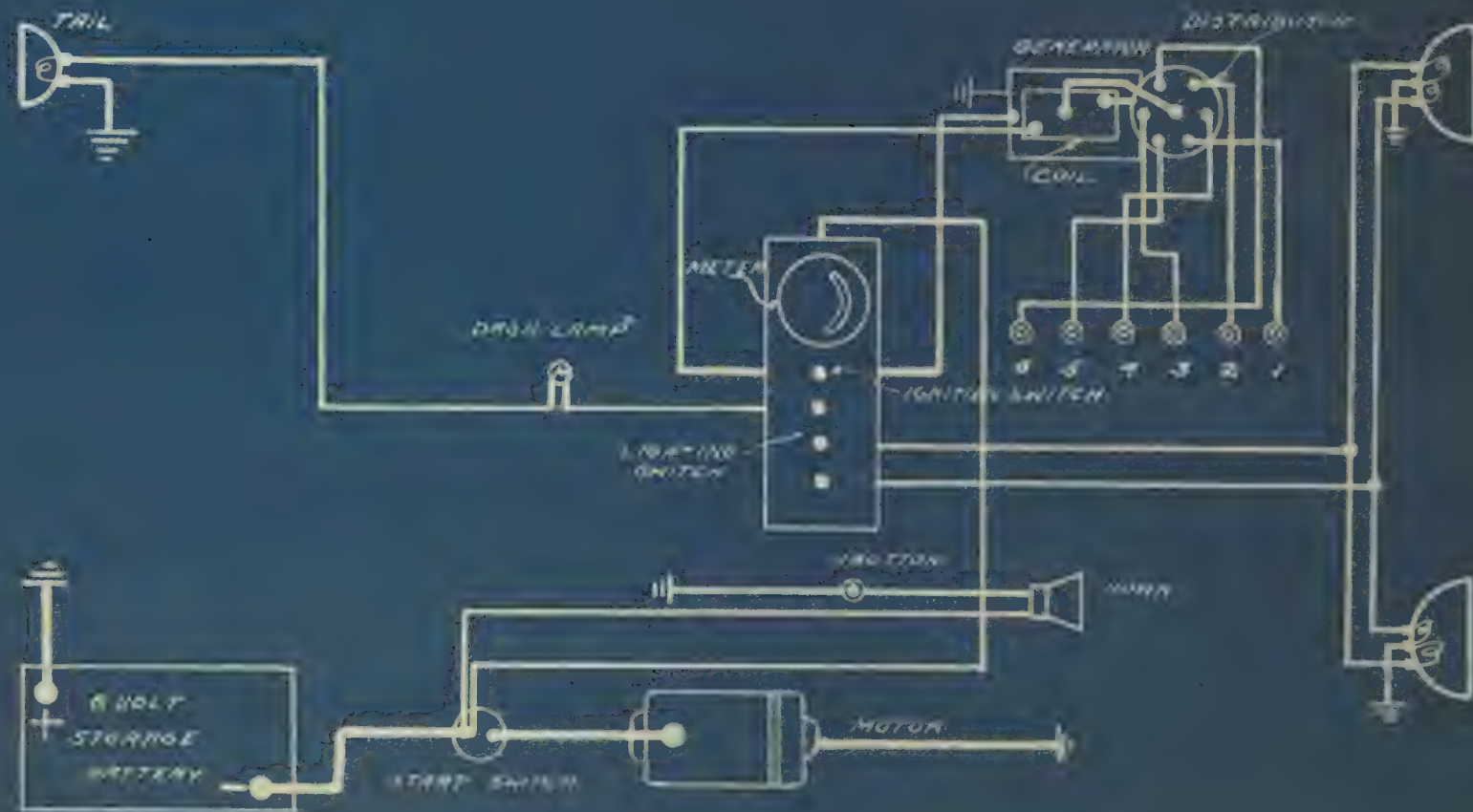
**STEPHENS**  
DELCO SYSTEM

1917-60-65

1919-74 & 76

1918-70-74-75-78

FROM H.P.H. & H.T. BOOKS



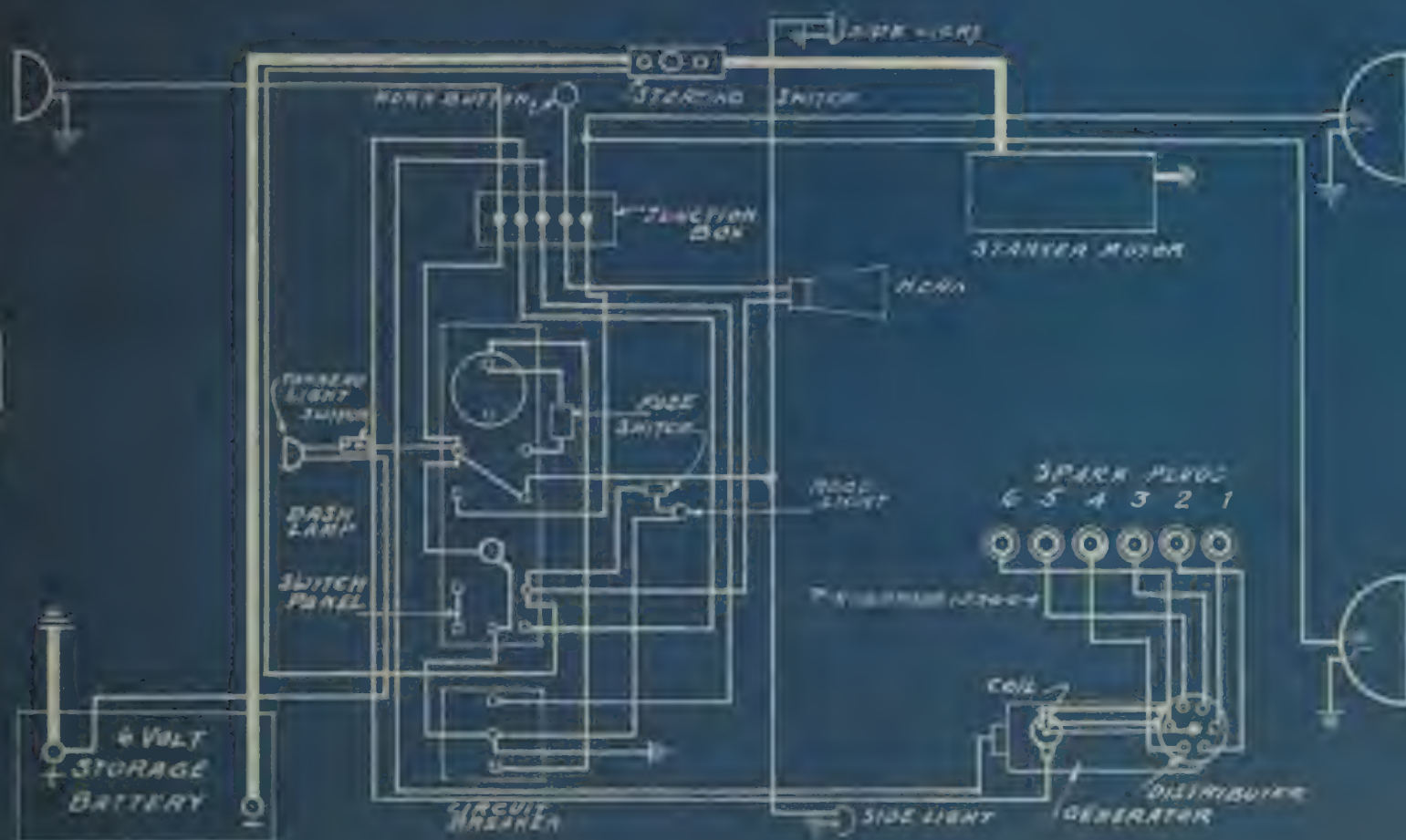


# STEPHENS 80 1919-1920

AUTO LITE STARTING AND LIGHTING CONN. IGN.

SPARK PLUGS 4-10-11-12-13

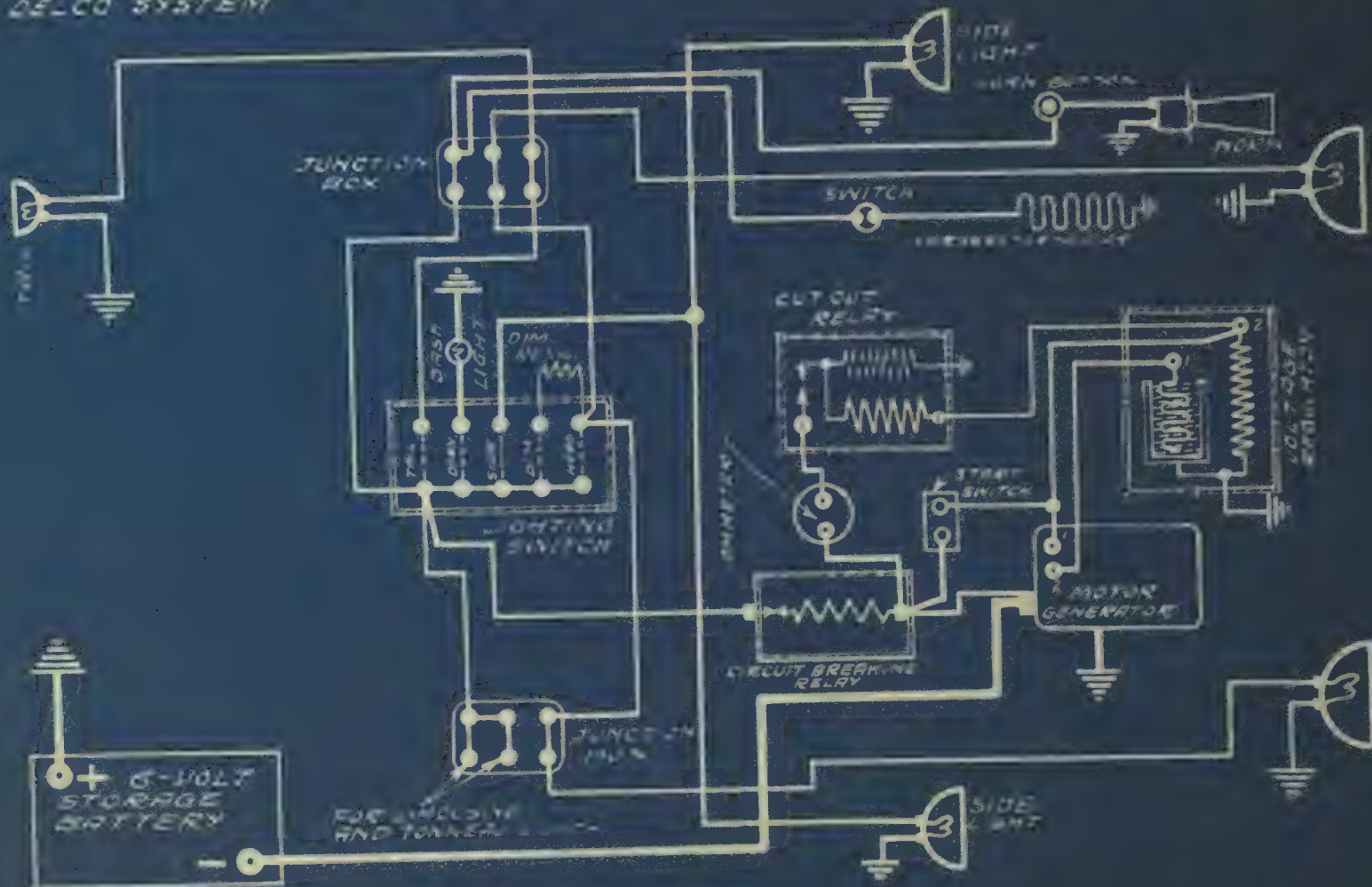
AUTOMOTIVE PUBLISHING CO. CHICAGO, ILL.



STEVENS-DURYEA 1915 D-6  
DELCO SYSTEM

19/5 D-6

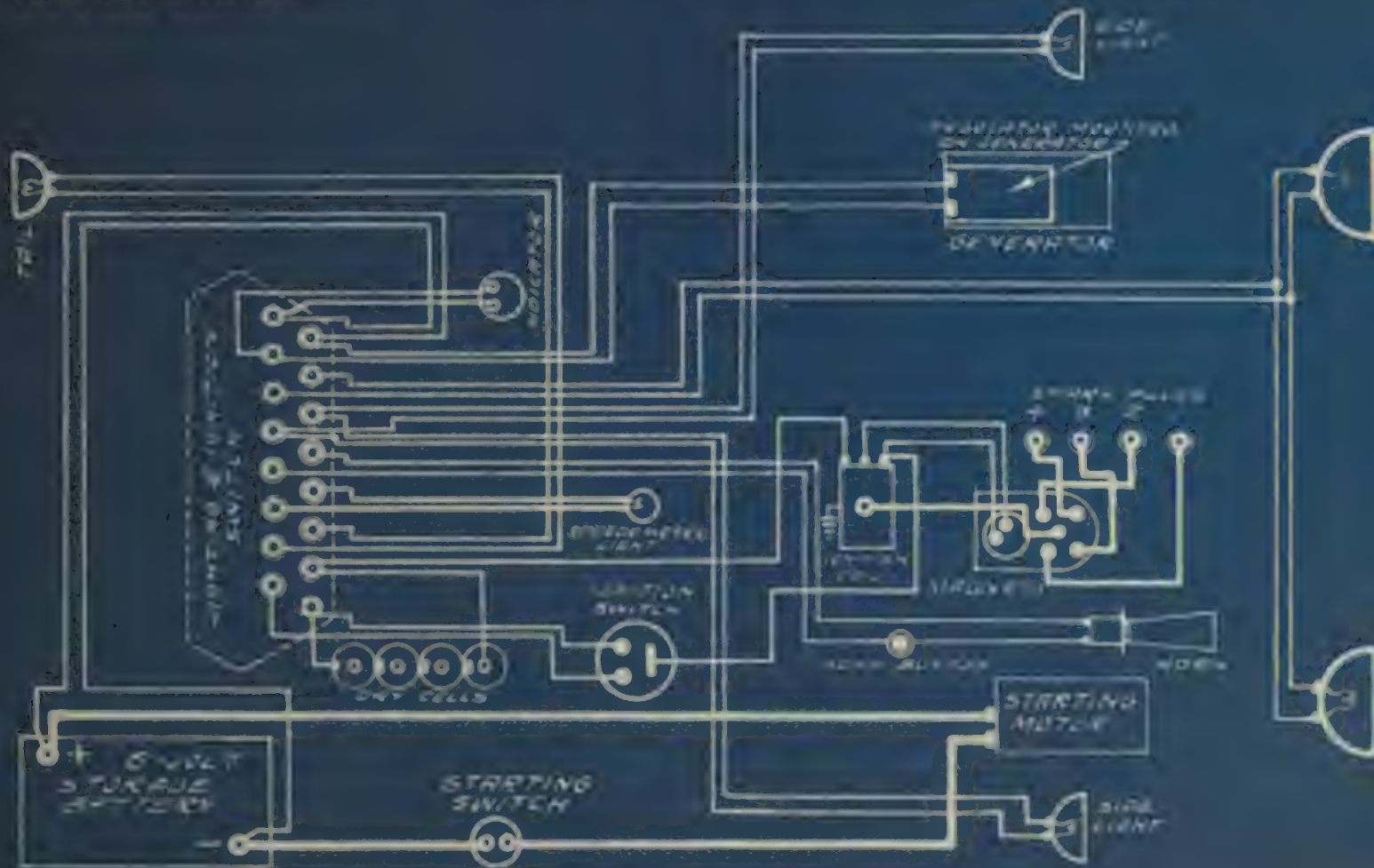
FROM SELECT MANUAL



# STUDEBAKER WAGNER SYSTEM

1914 FOUR

FROM MFG. BLUE PRINTS  
10888-10990-11021

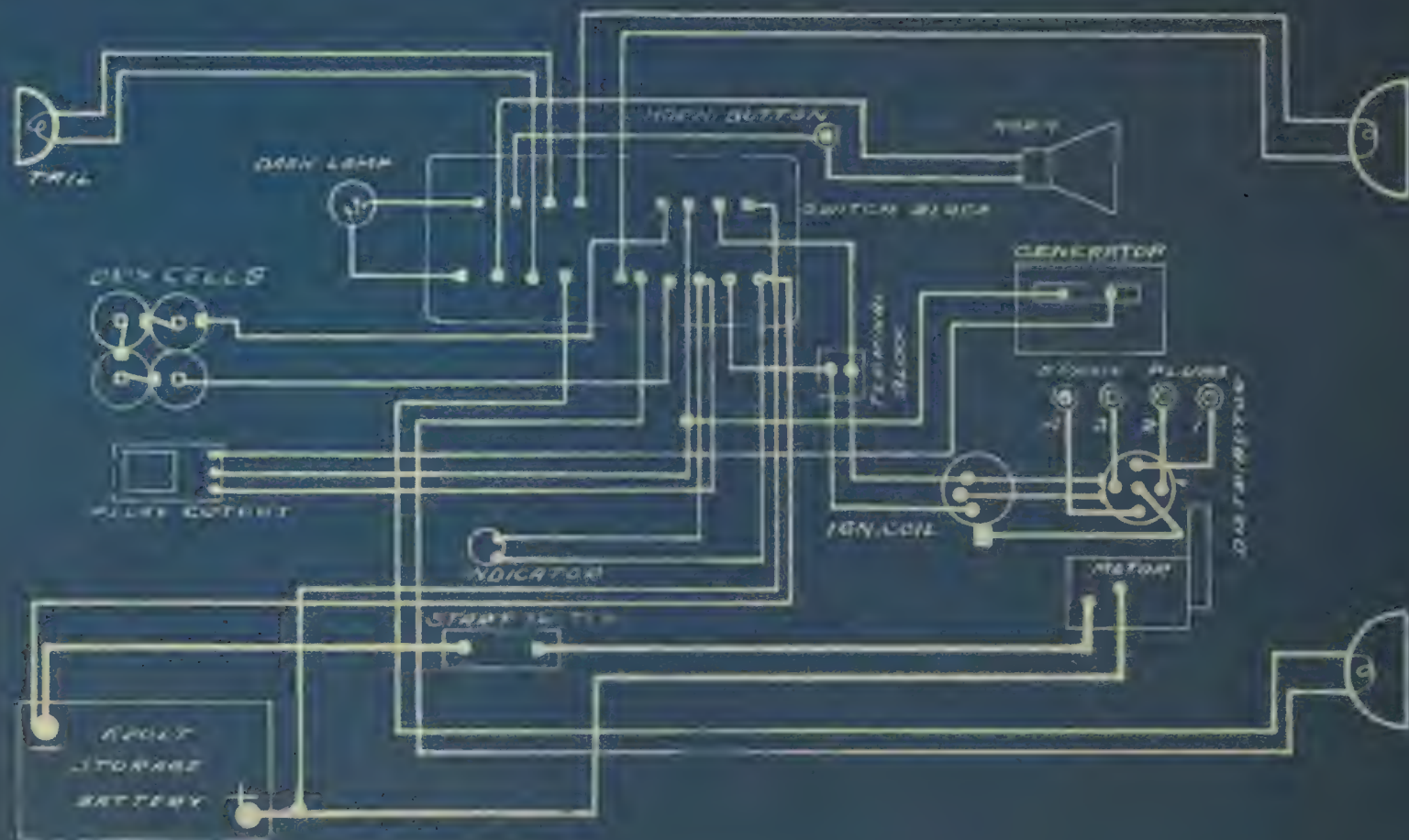




# STUDEBAKER 1915 EC-SD-5

WAGNER SYSTEM-REMY IGN.

FROM NARS #17216

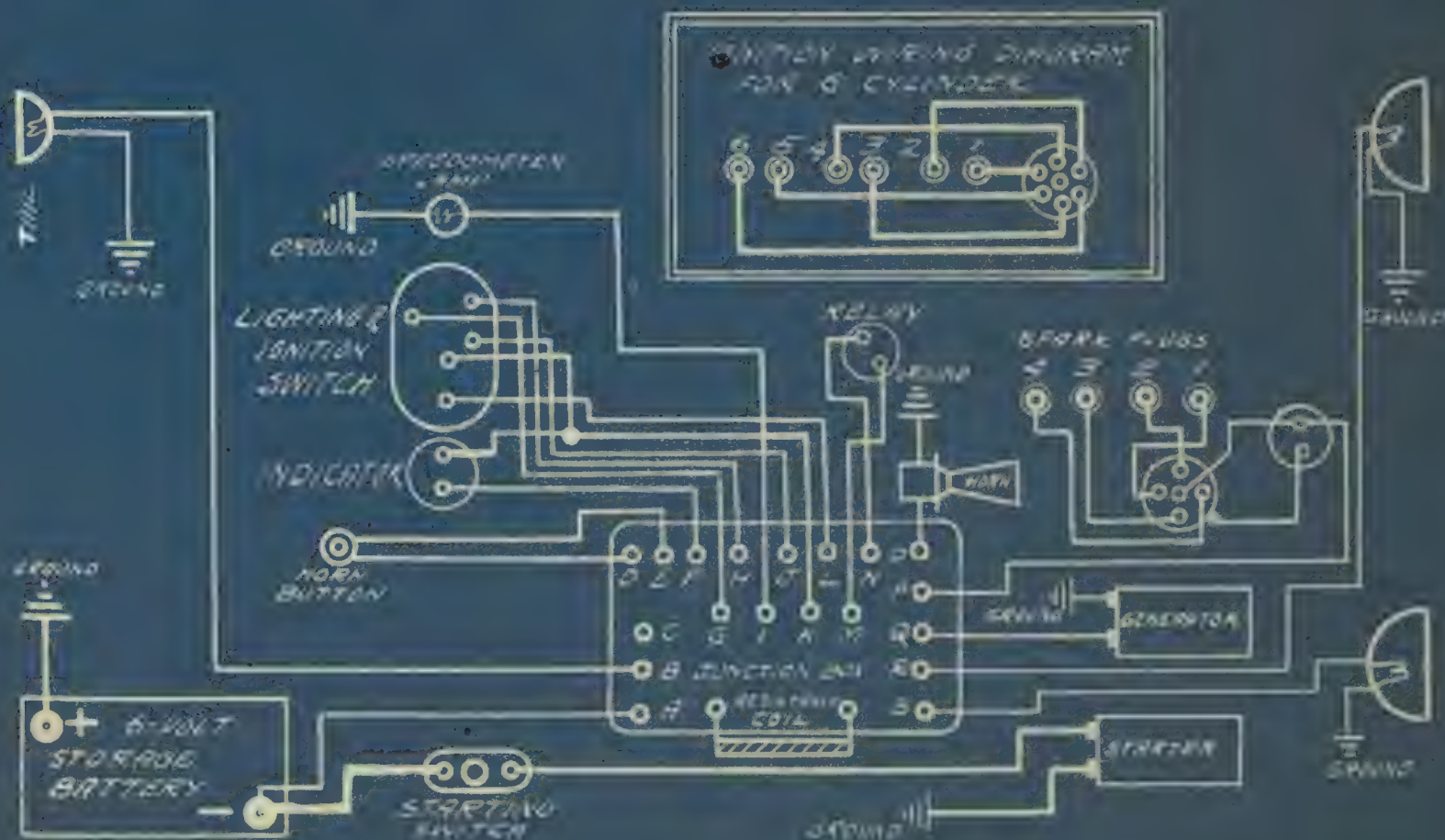




# STUDEBAKER 1916-17 "SERIES 17 & 18"

WAGNER SYSTEM - REMY 12V.

FROM PATENT OFF. 18599

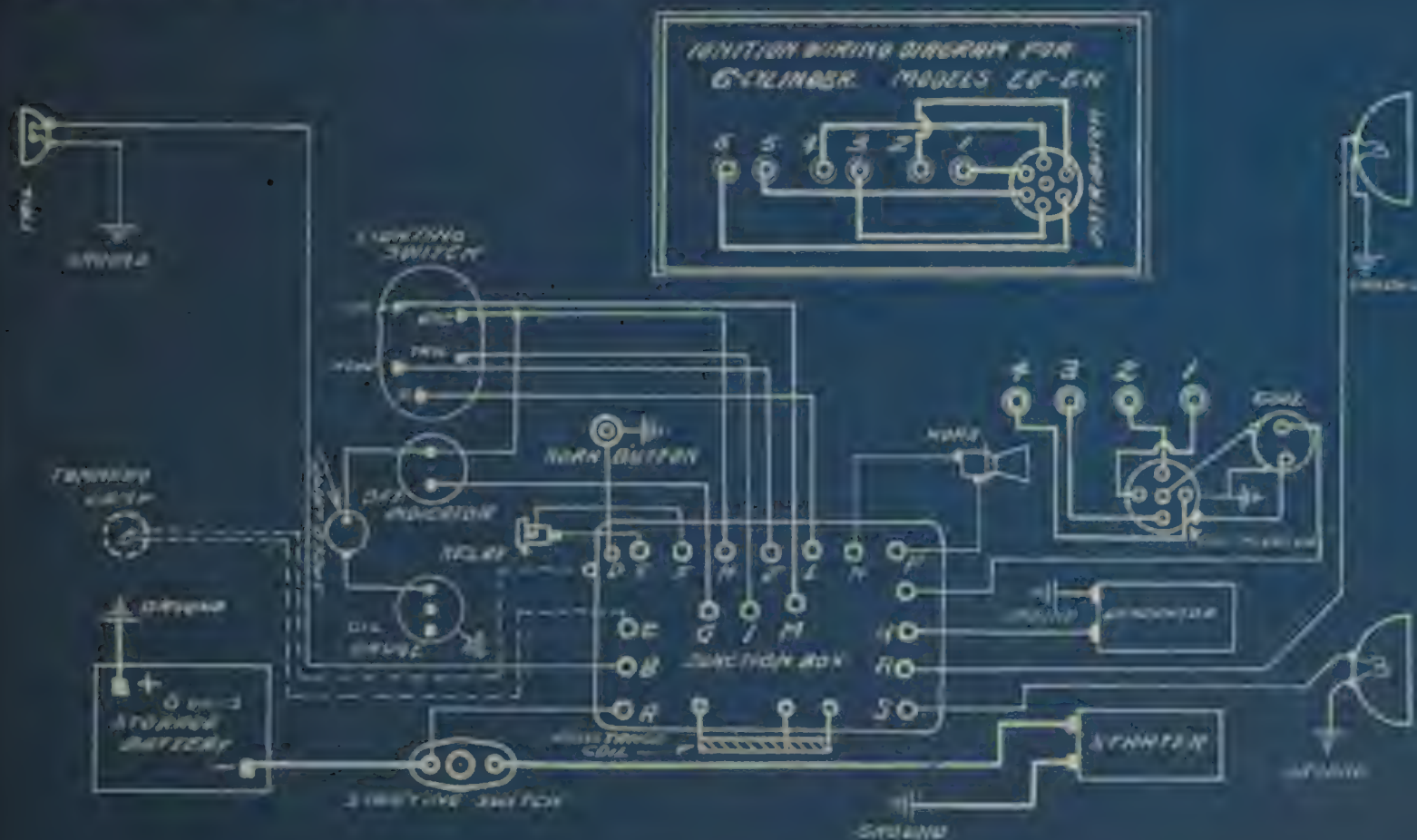




# STUDEBAKER MODELS '5H' '6G' 'EH' 1918-1919.

FROM FACTORY BR 35354

WAGNER STARTING & LIGHTING SYSTEM  
REMY CLOSED CIRCUIT IGNITION SYSTEM

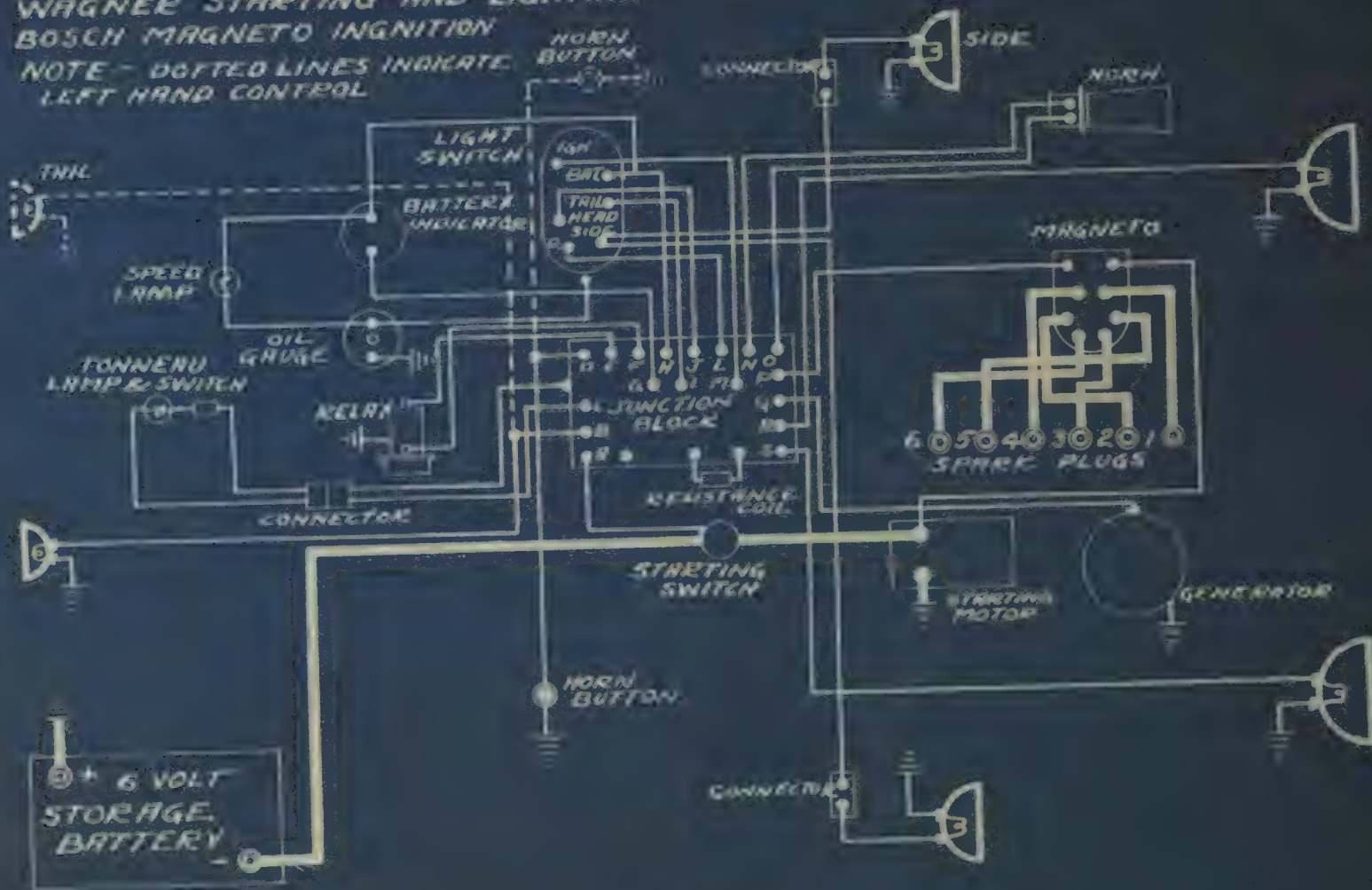


# STUDEBAKER "SERIES 20" 1920

WAGNER STARTING AND LIGHTING  
BOSCH MAGNETO IGNITION

NOTE - DOTTED LINES INDICATE  
LEFT HAND CONTROL

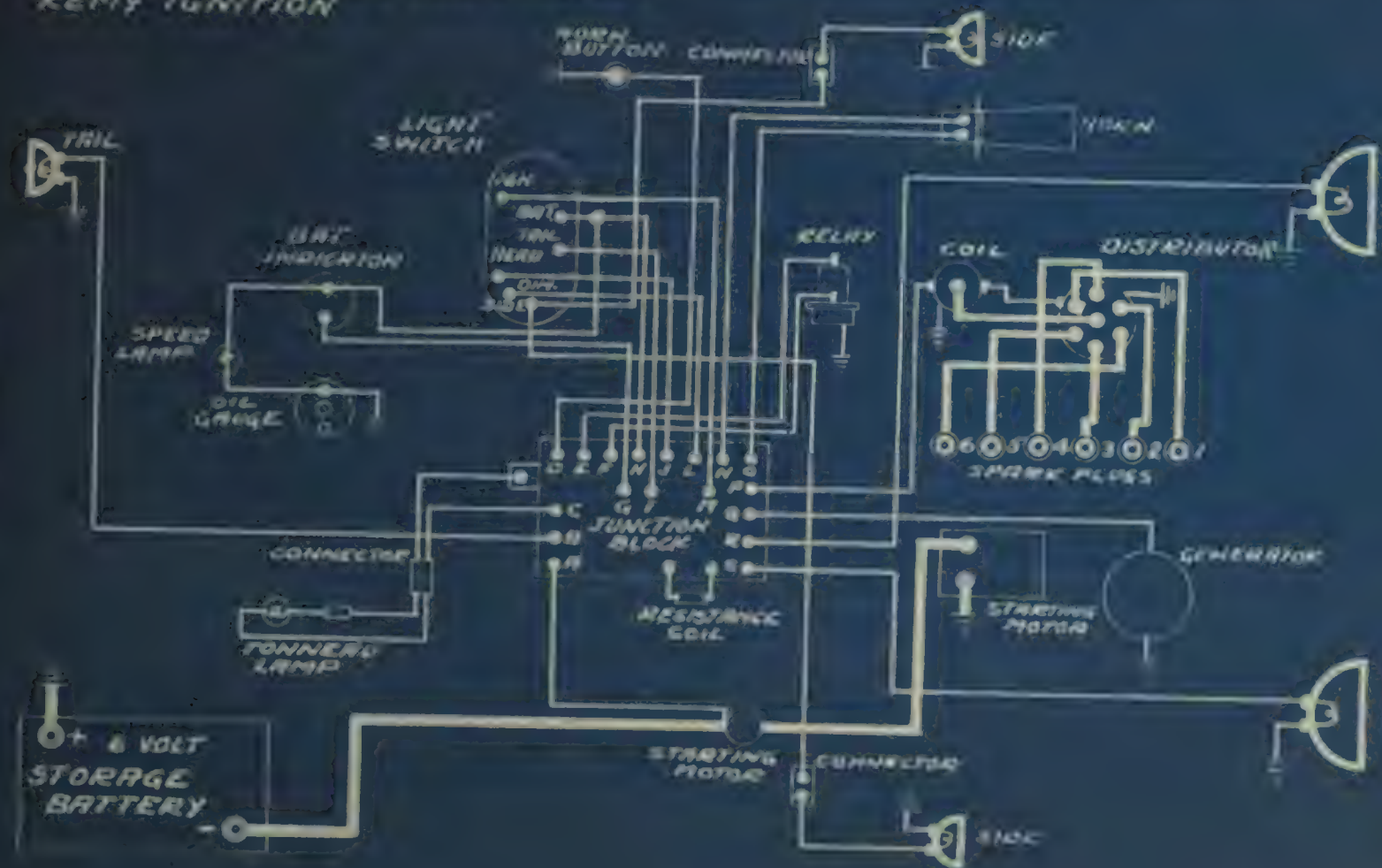
FROM FORD N.A. 36730



# STUDEBAKER SERIES 20 1920

WAGNER STARTING AND LIGHTING  
REMY IGNITION

WAGNER STARTING AND LIGHTING  
REMY IGNITION

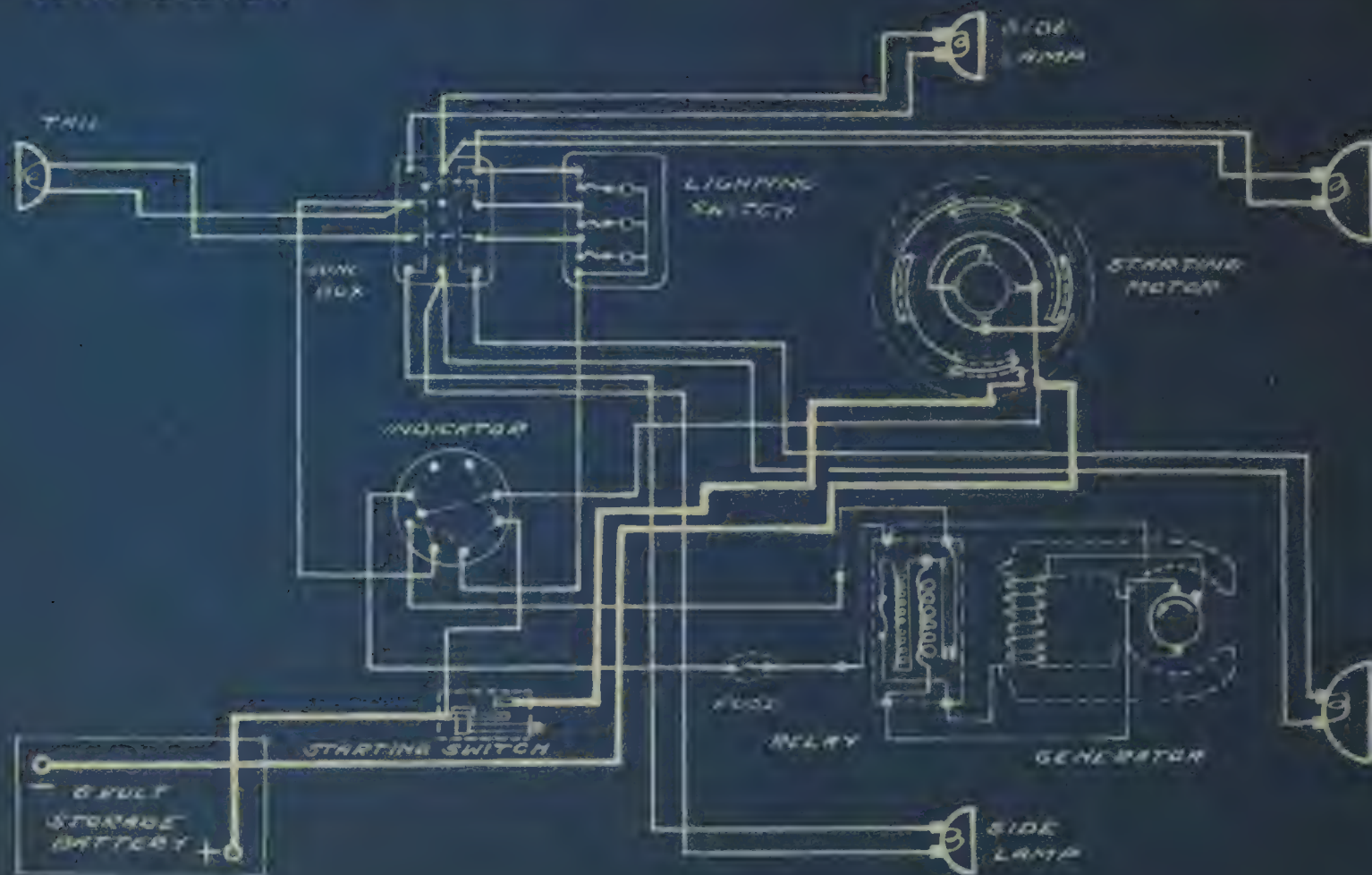




# STUTZ 1914-1915

REMY SYSTEM

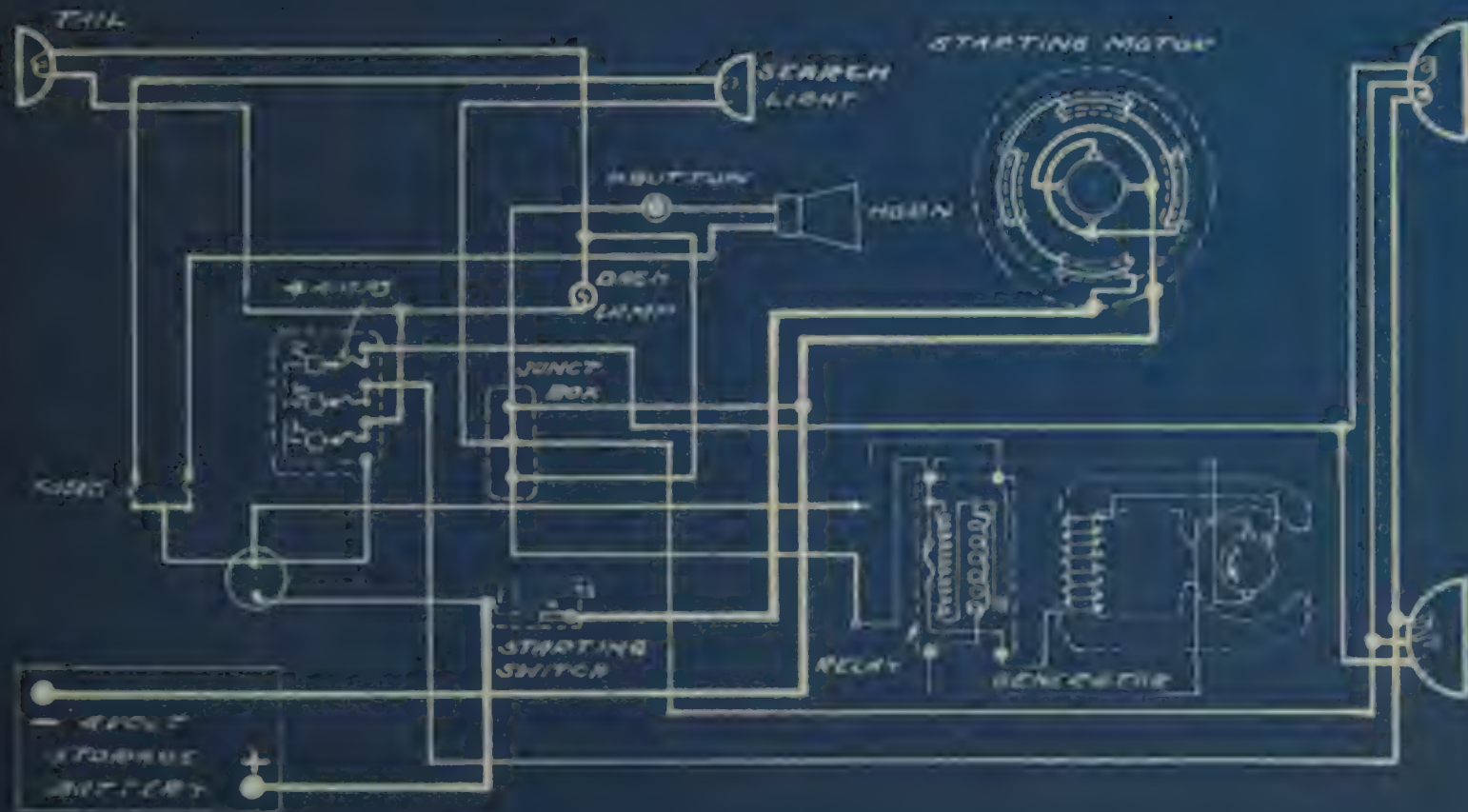
FROM REMY MODEL



# STUTZ 1916-1917

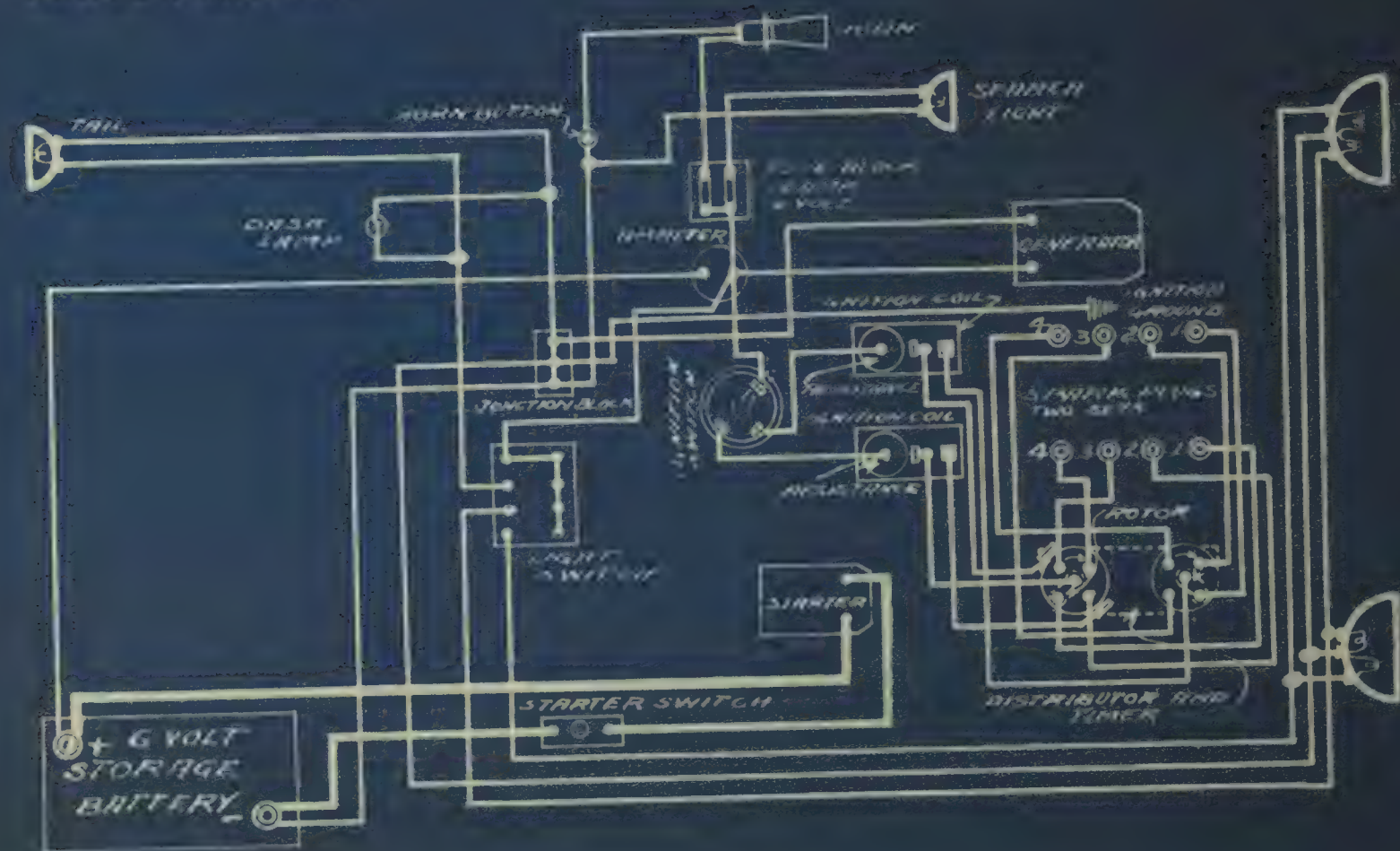
REMY SYSTEM

FROM REMY MANUAL



STUTZ 1918-1919  
REMY SYSTEM  
DELCO IGNITION

FROM REFS. B. 1 3031

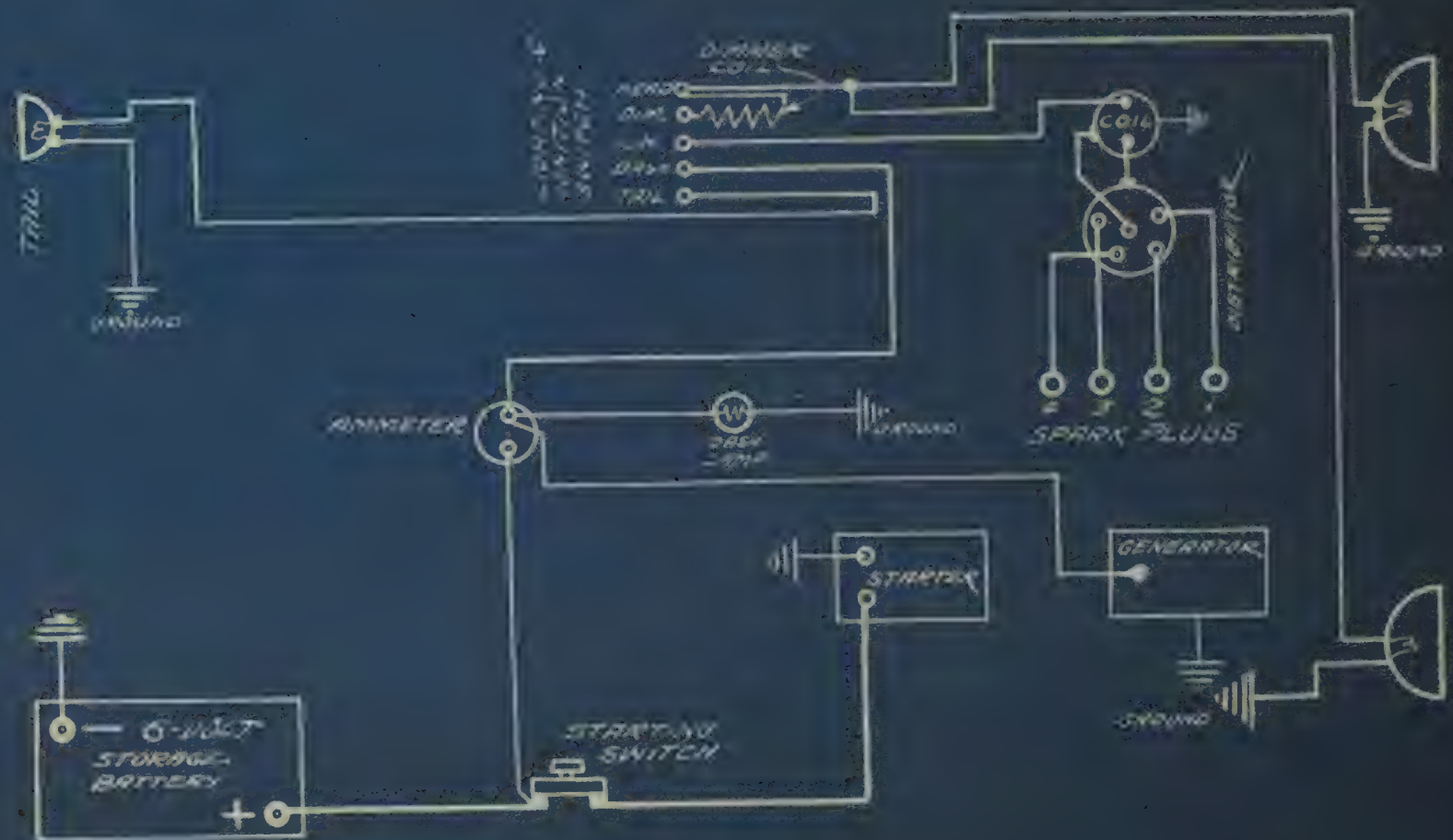






TEMPLAR 1918-445-1919  
REMY SYSTEM

FROM MARS, OF 20049

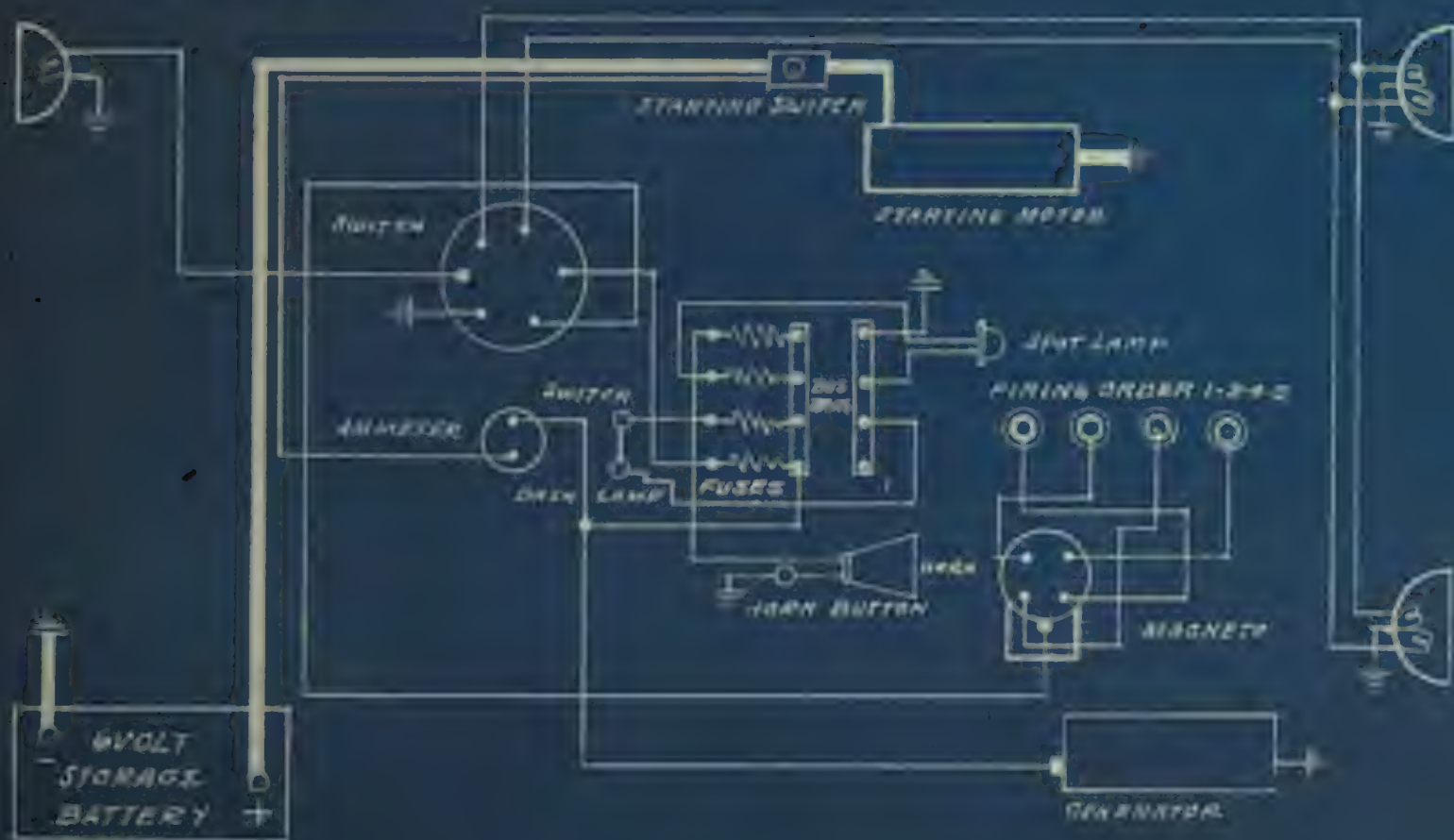


# TEMPLAR 4-45. 1919-1920

BIGUE STARTING & LIGHTING

SIMPLE MAGNETIC IGN.

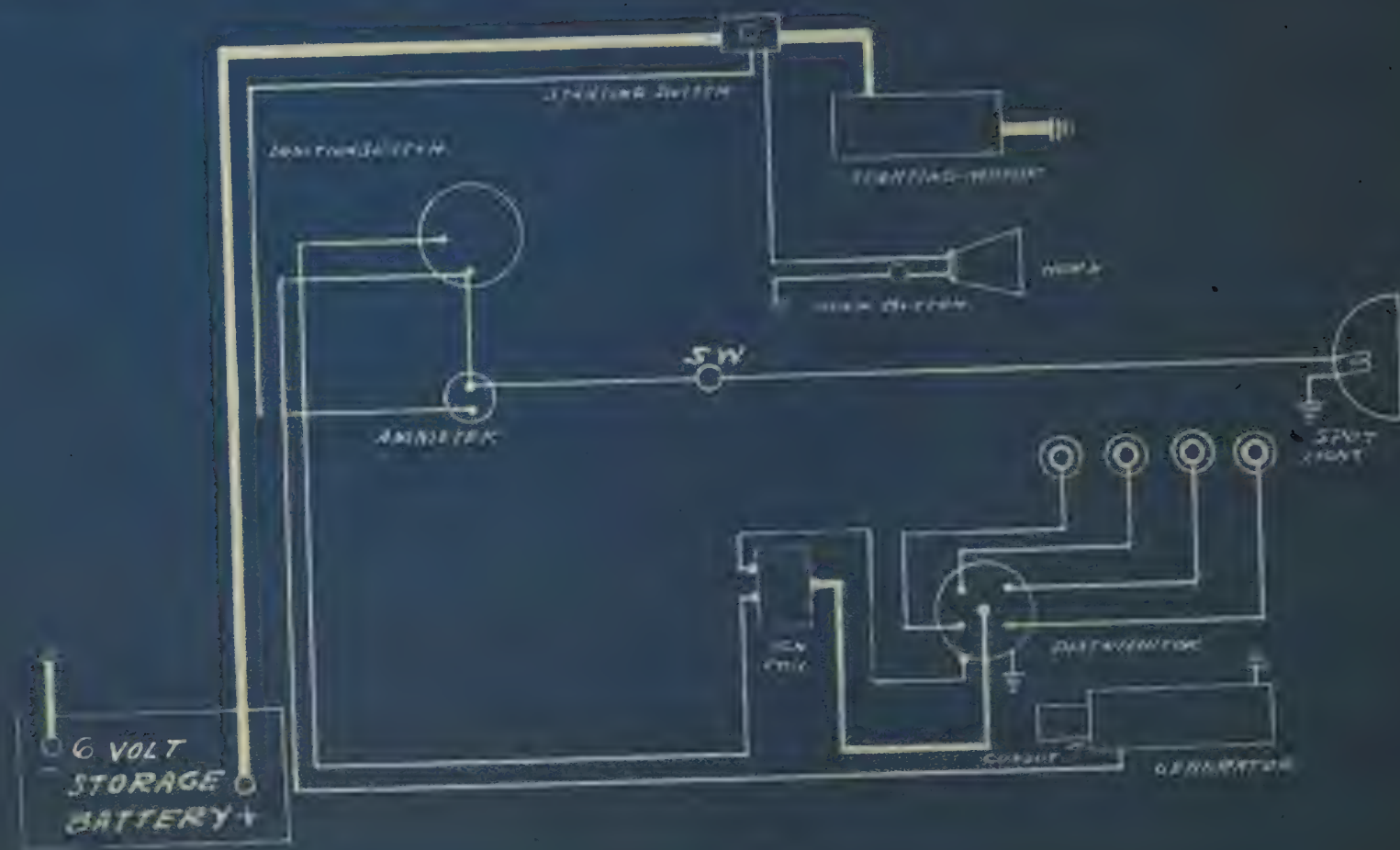
FROM MFRS. INST. BORN





# TOWMOTOR 1920 DELCO SYSTEM

FROM HERS INST BOOK



# UNION MOTOR TRUCK 1916-1917

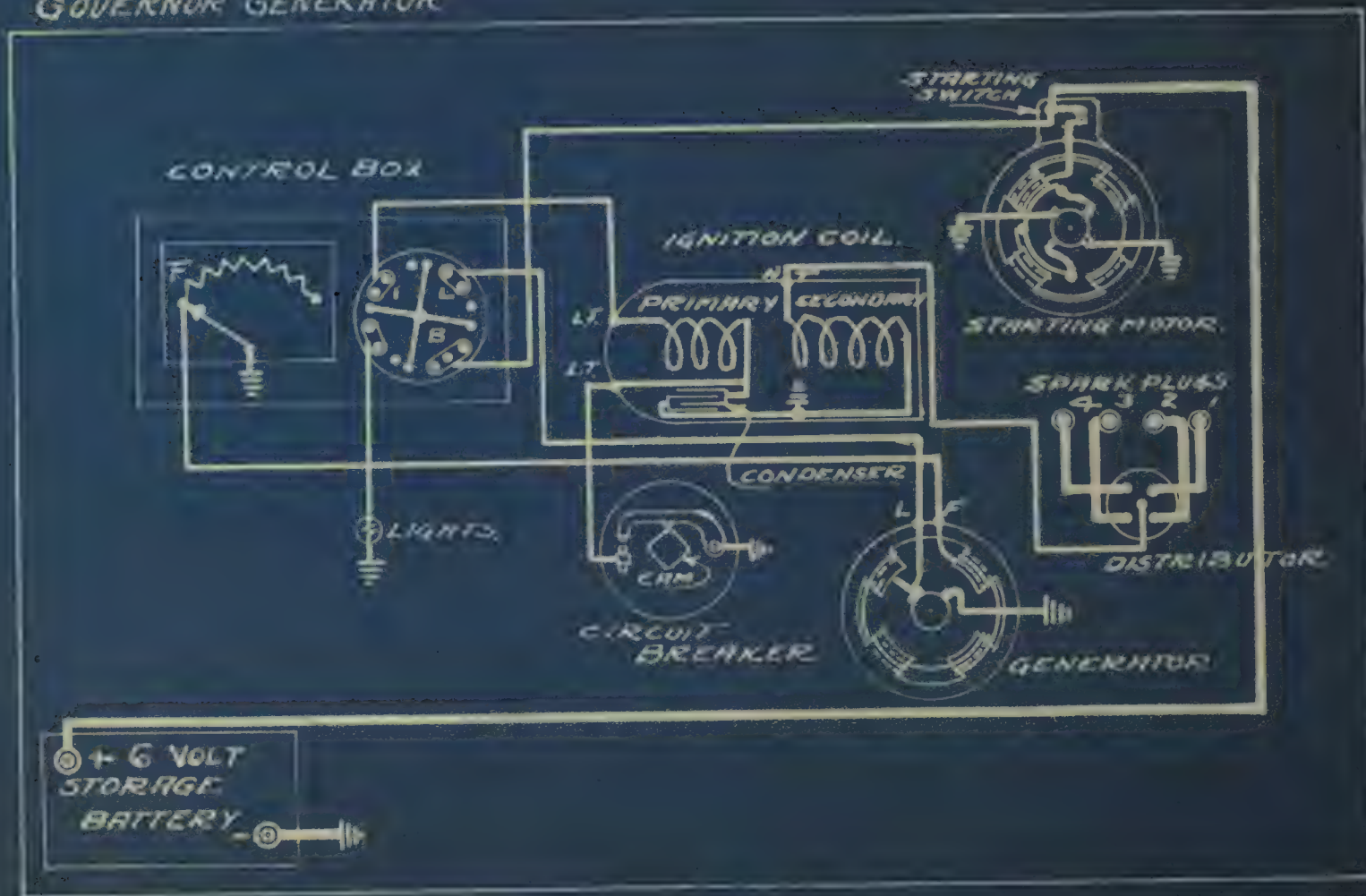
AUTO-LITE SYSTEM - CONN. 10N

FROM AUTO-LITE BY



UNIVERSAL TRACTOR MOLINE PLOW CO.  
 REMY SYSTEM.  
 GOVERNOR GENERATOR

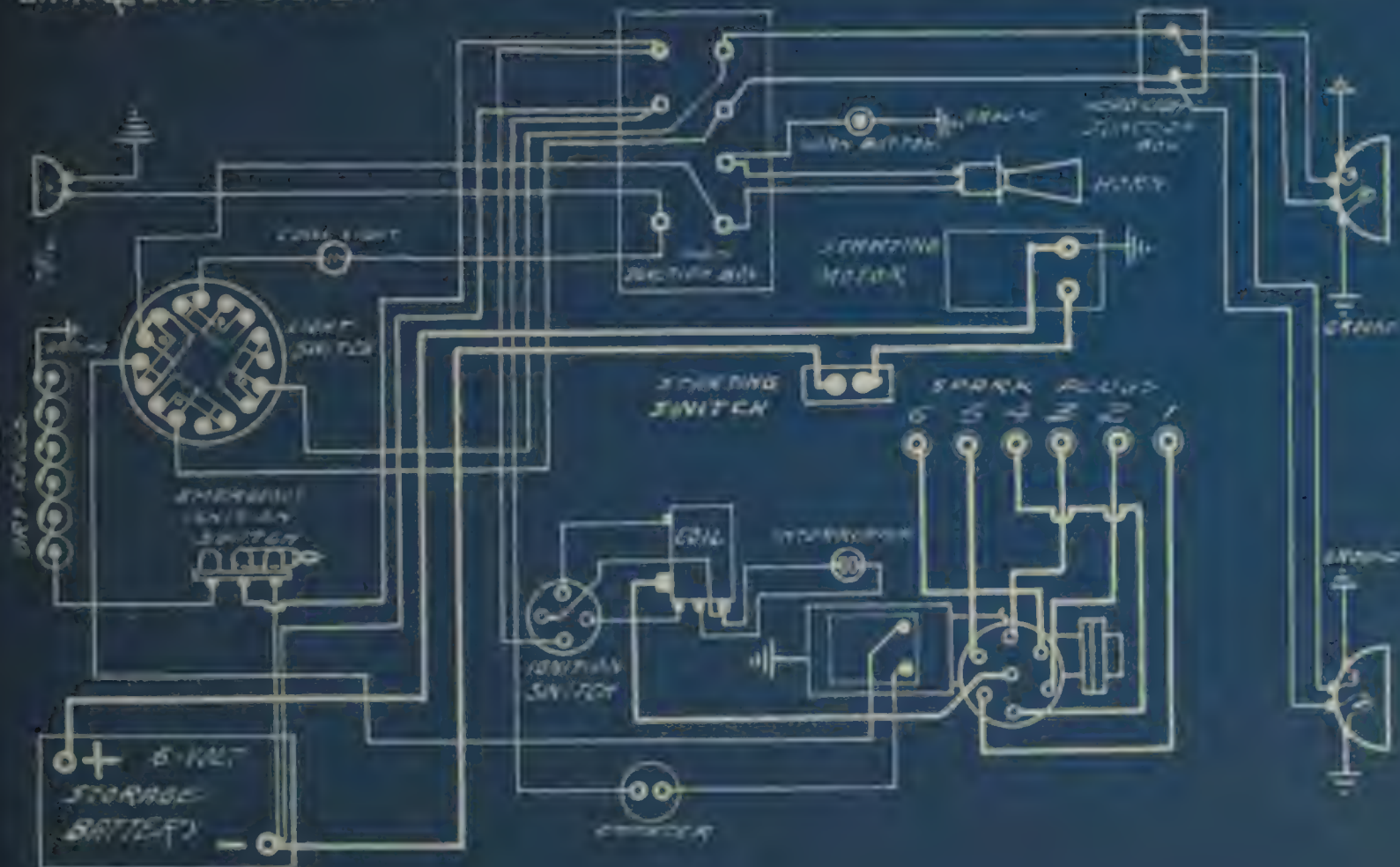
FROM REMY ENGR. DATA





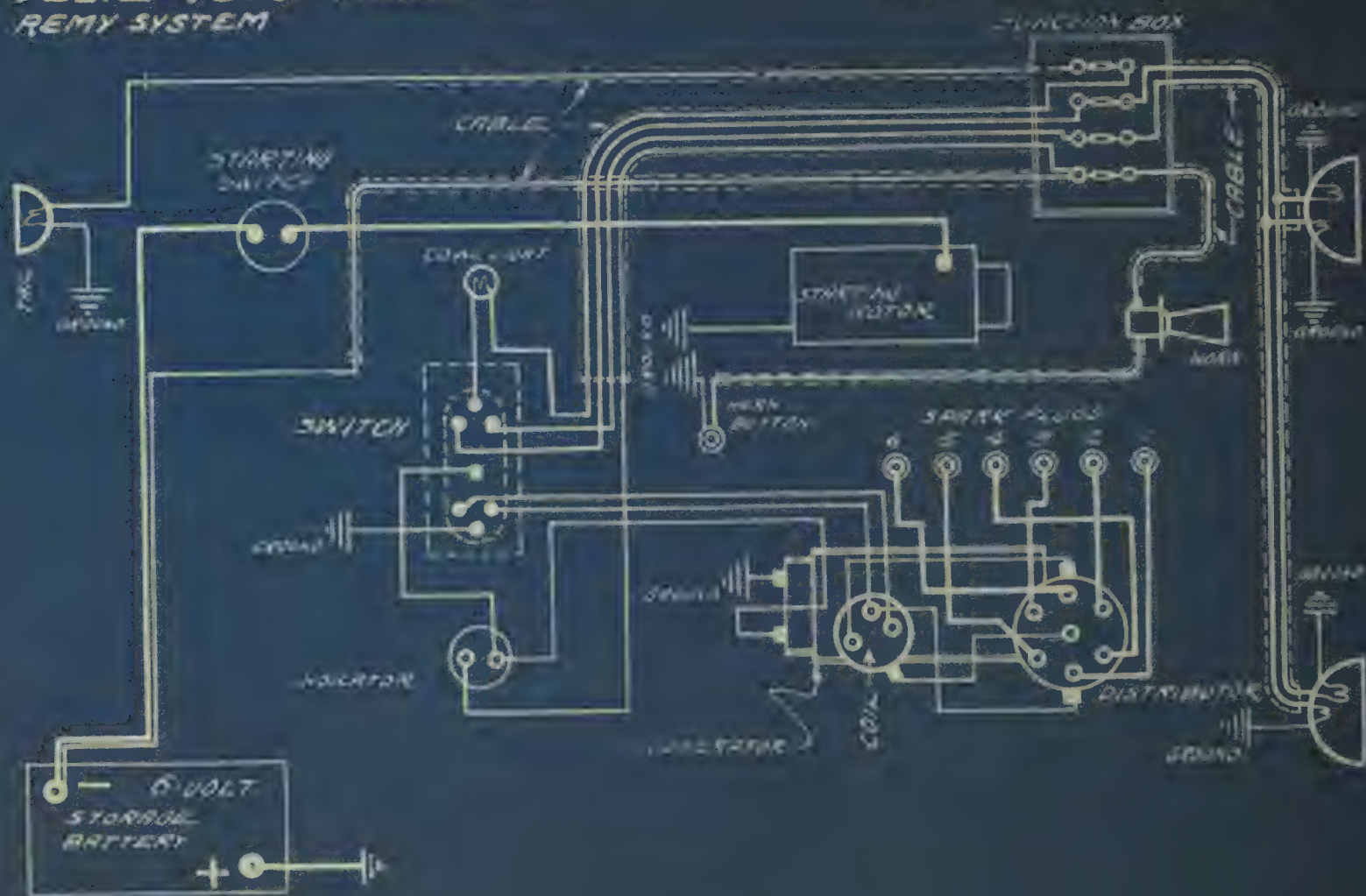
VELIE 1915-1916 "15"  
GRAY & DAVIS SYSTEM

FROM MARSHALL 15-112



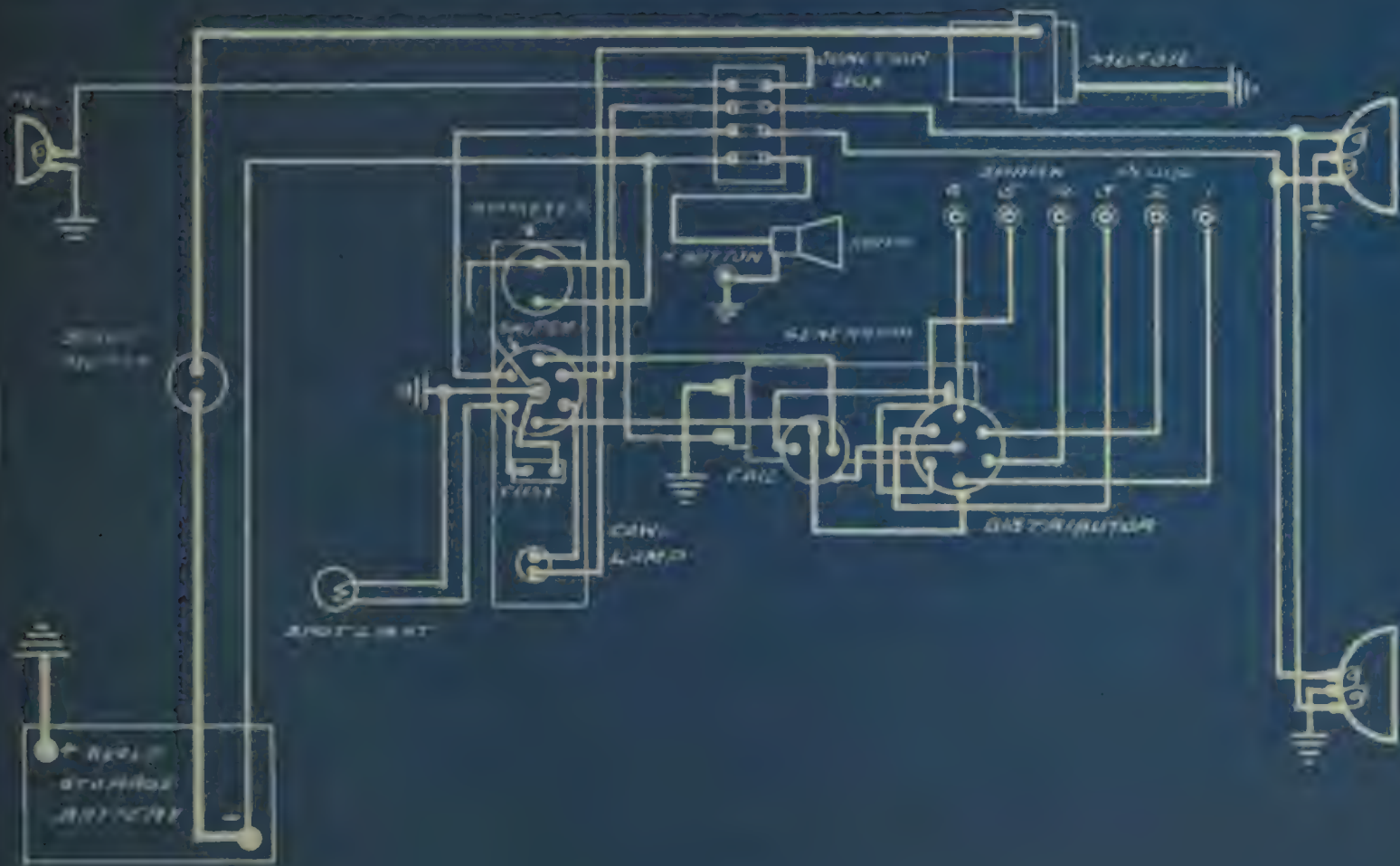
VELIE 1916 MODEL "22"  
REMY SYSTEM

FROM MEMO BY 22-V-102



# VELIE MODEL 27 1917

Wiring Diagram for Model 27-1917

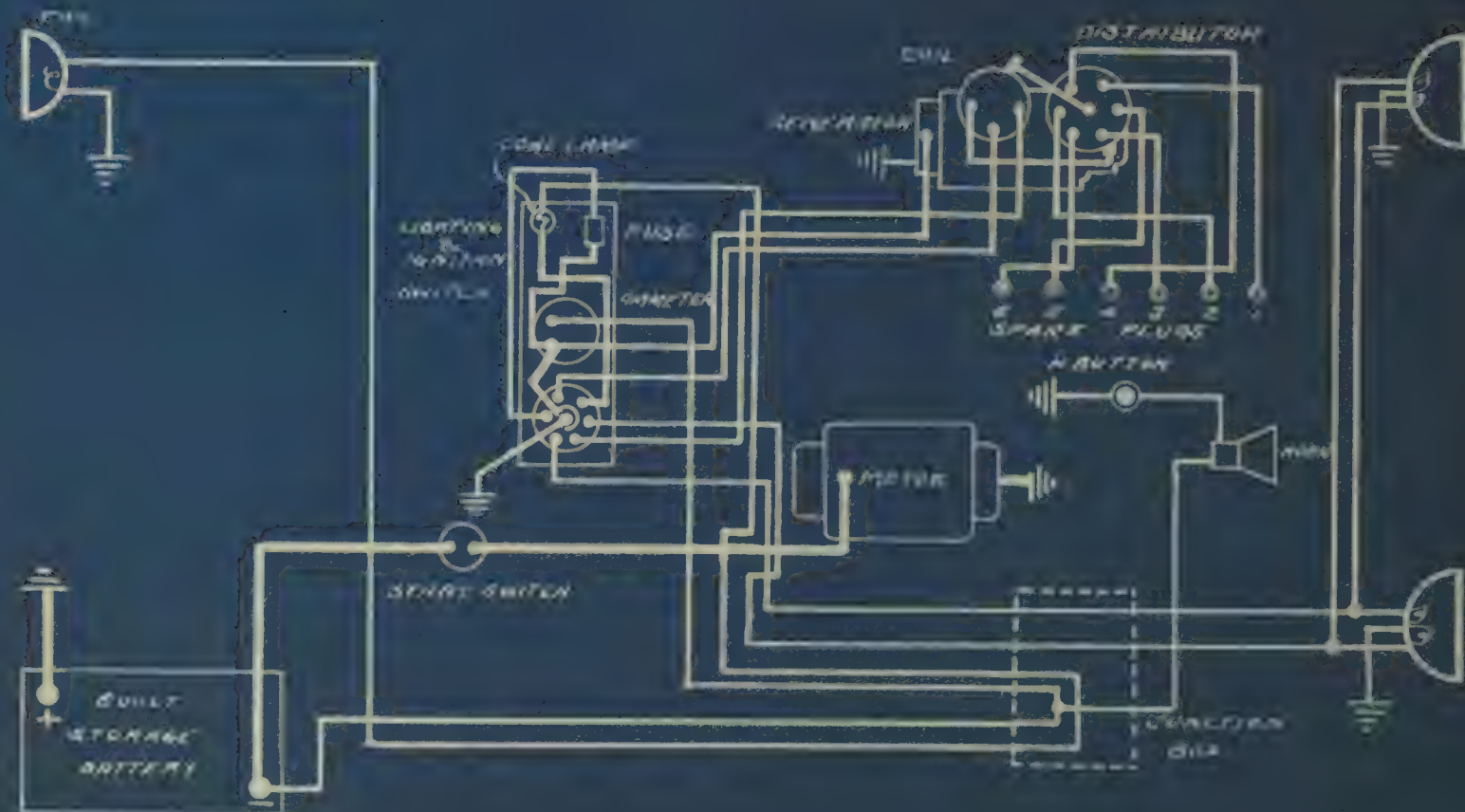




# VELIE MODEL 28 1917

WIRE DIAGRAM

FROM MOTOR IN POSITION

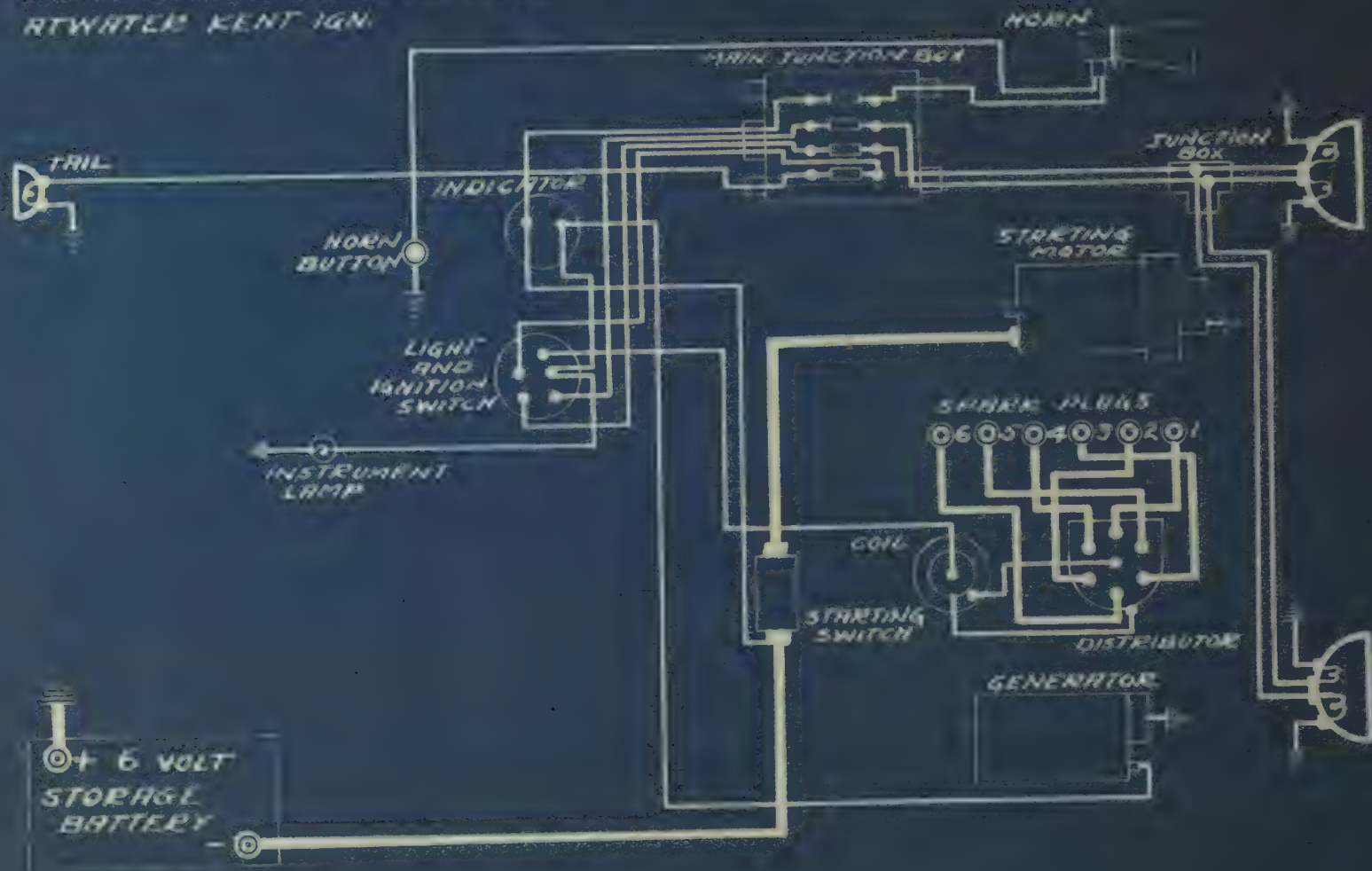




# VELIE MODEL 4-8 1920

REMY STARTING AND LIGHTING  
ATWATER KENT IGN.

EXTRA HIGH ALN V393

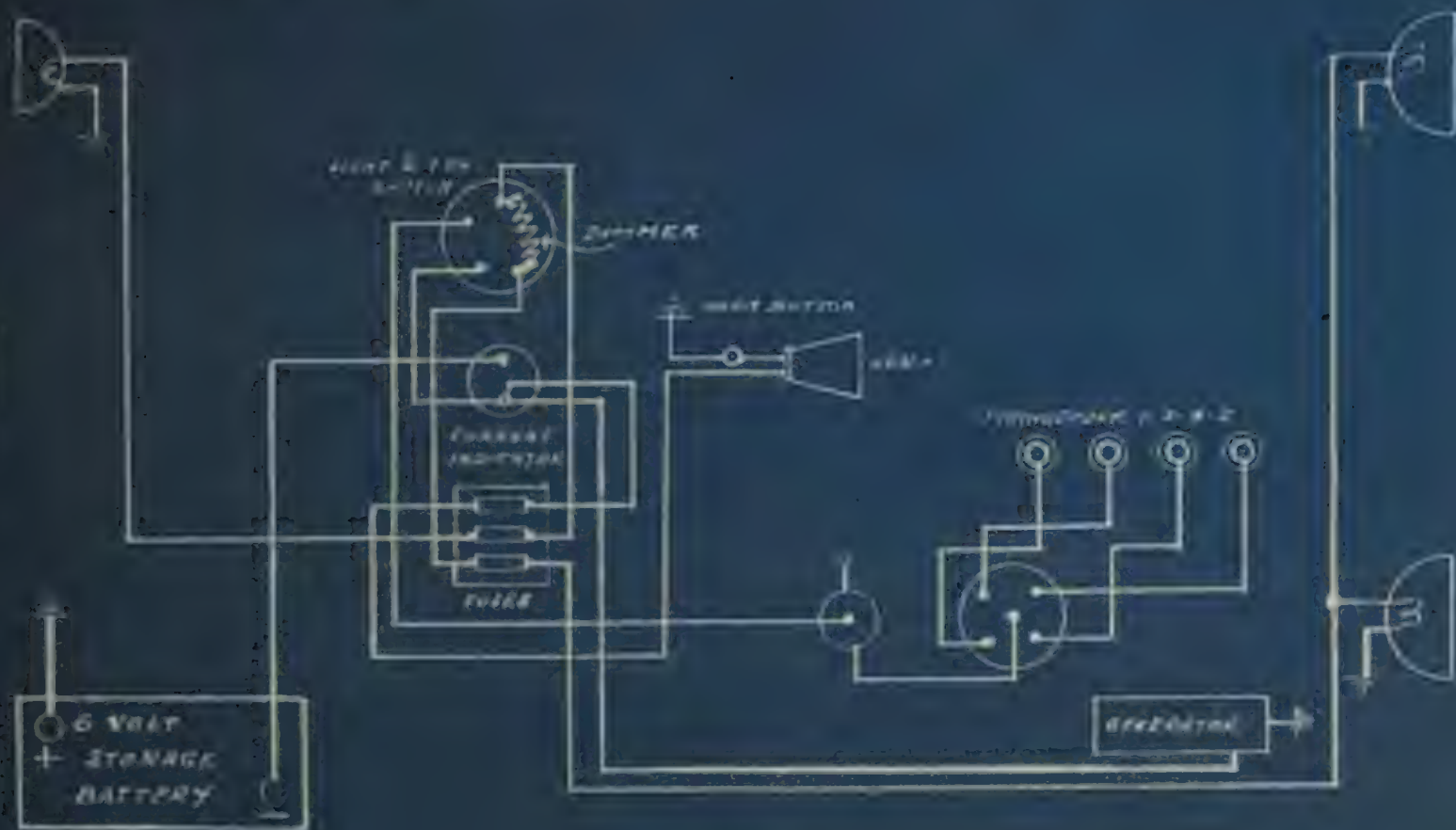




VIM TRUCK MODELS 21-26-27-28 1919-1920

## ATWATER KENT 1011

WESTINGHOUSE LTD SYSTEM

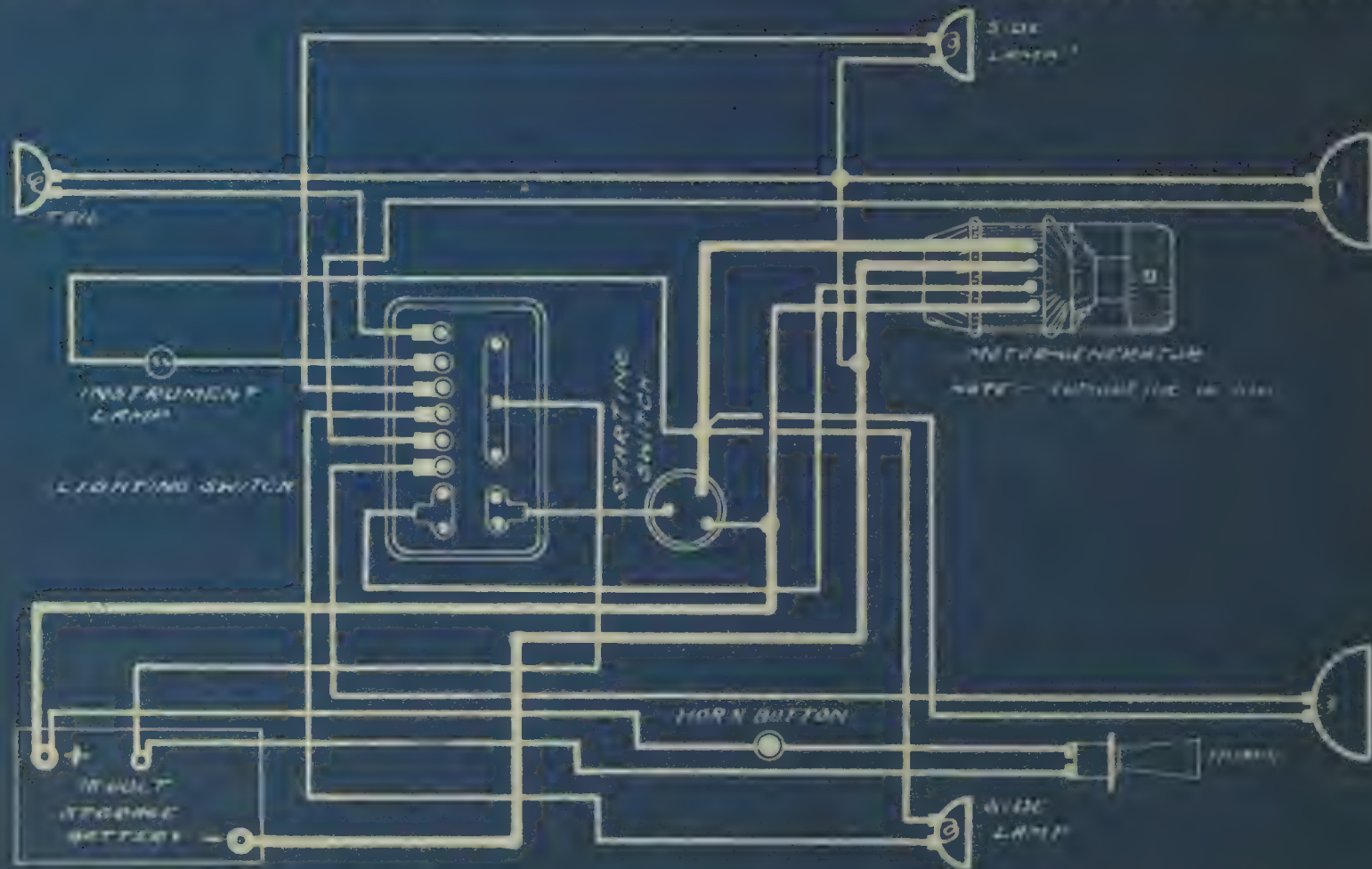


WARREN

1913-1914

NORTHEAST SYSTEM

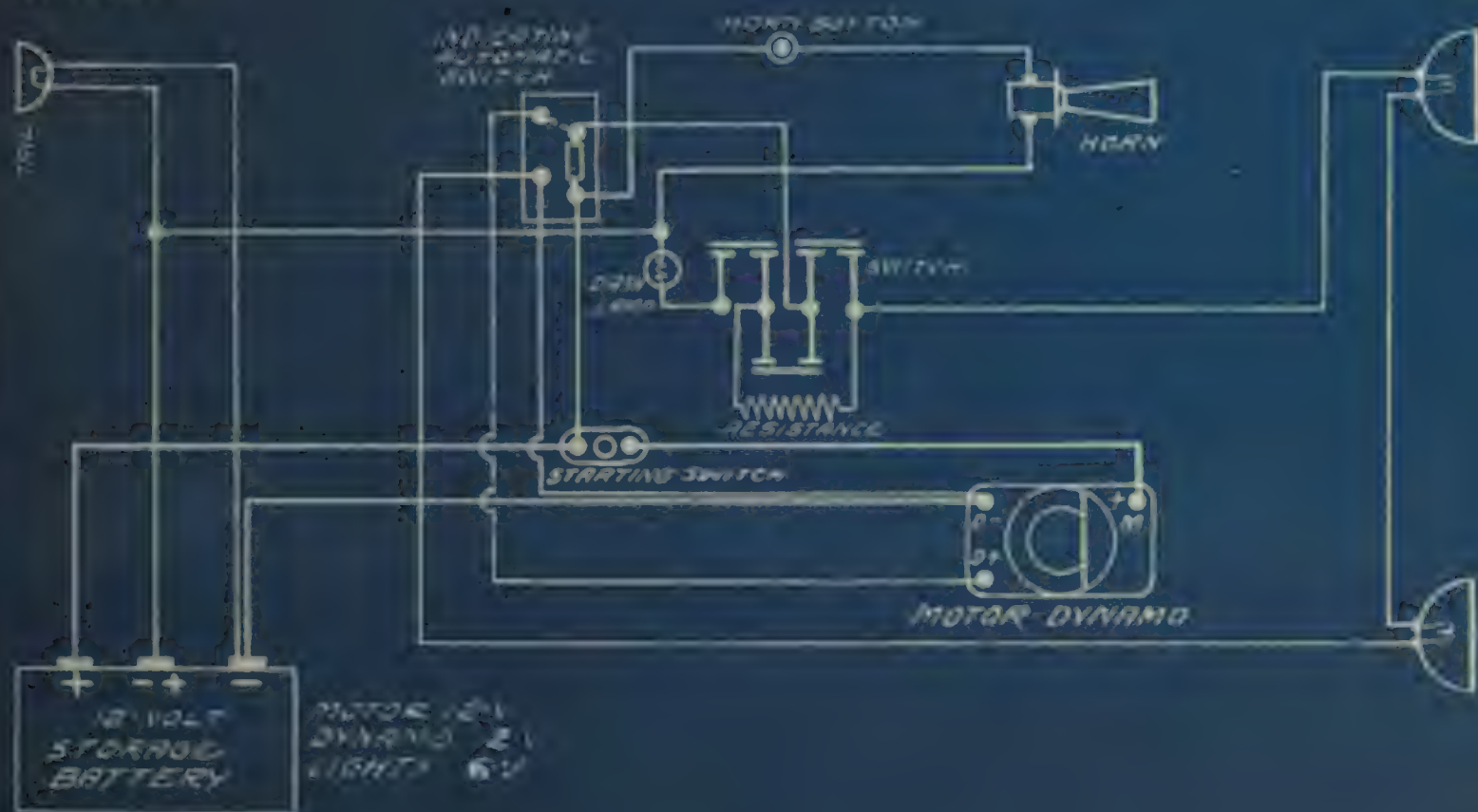
FROM NE PLATE 170



WAYNE 1915  
SPALDORF-PAULS SYSTEM

FROM SP-17-RP MANUAL

1. PLUG ACTS  
AS THE LIGHT  
SWITCH.

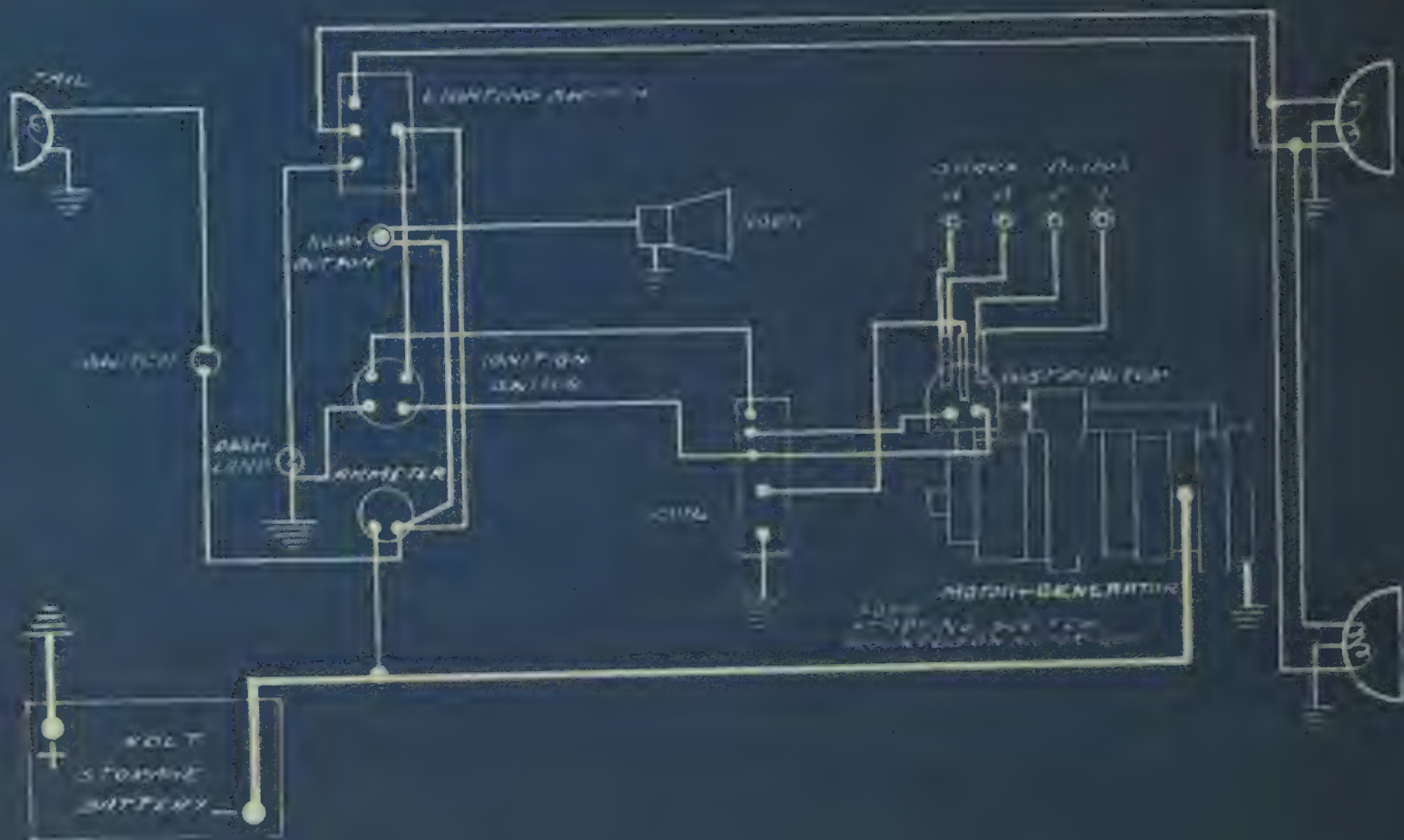


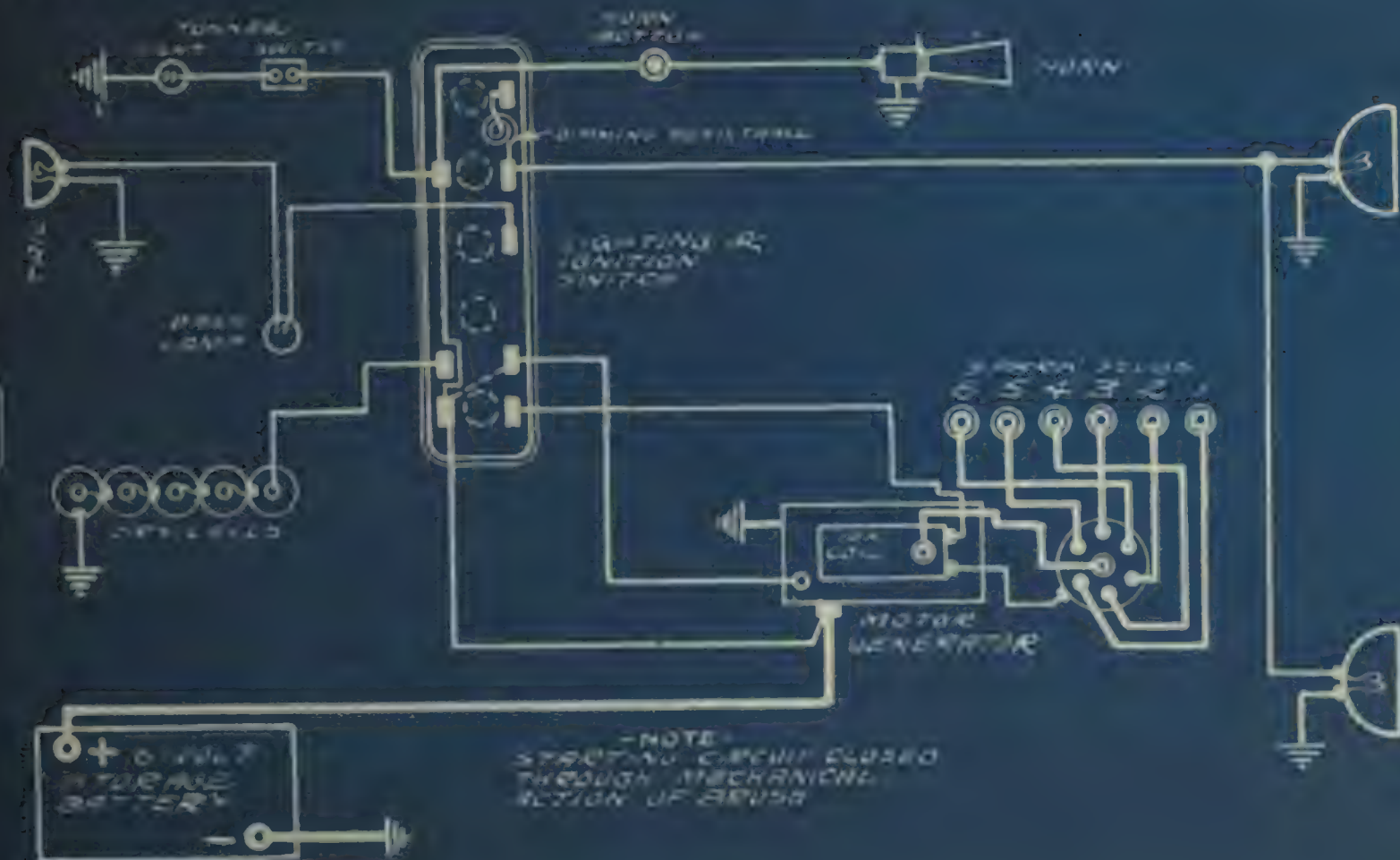


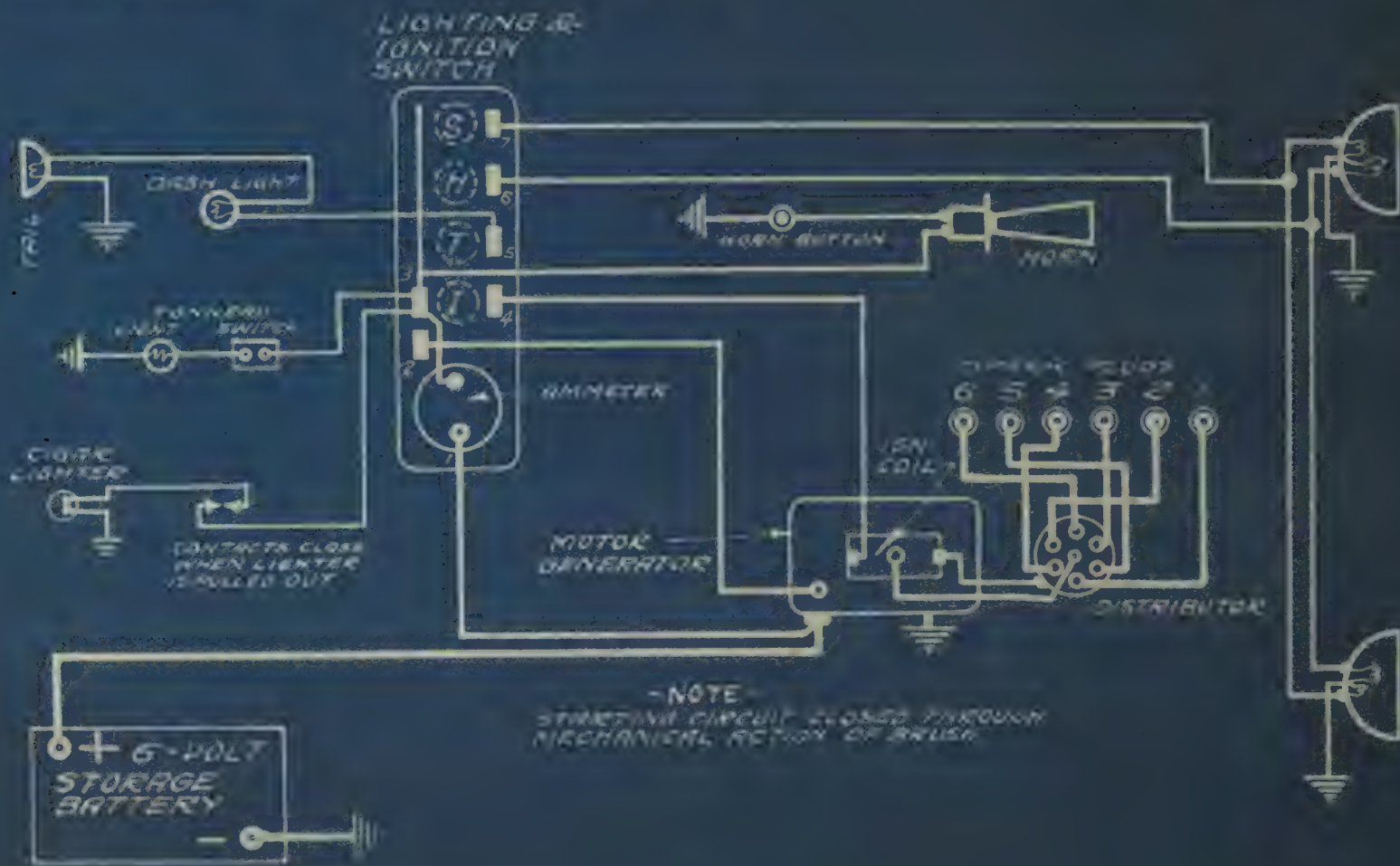
# WESTCOTT 1914 0-30

## JESCO SYSTEM

FROM NARS, BR 5172







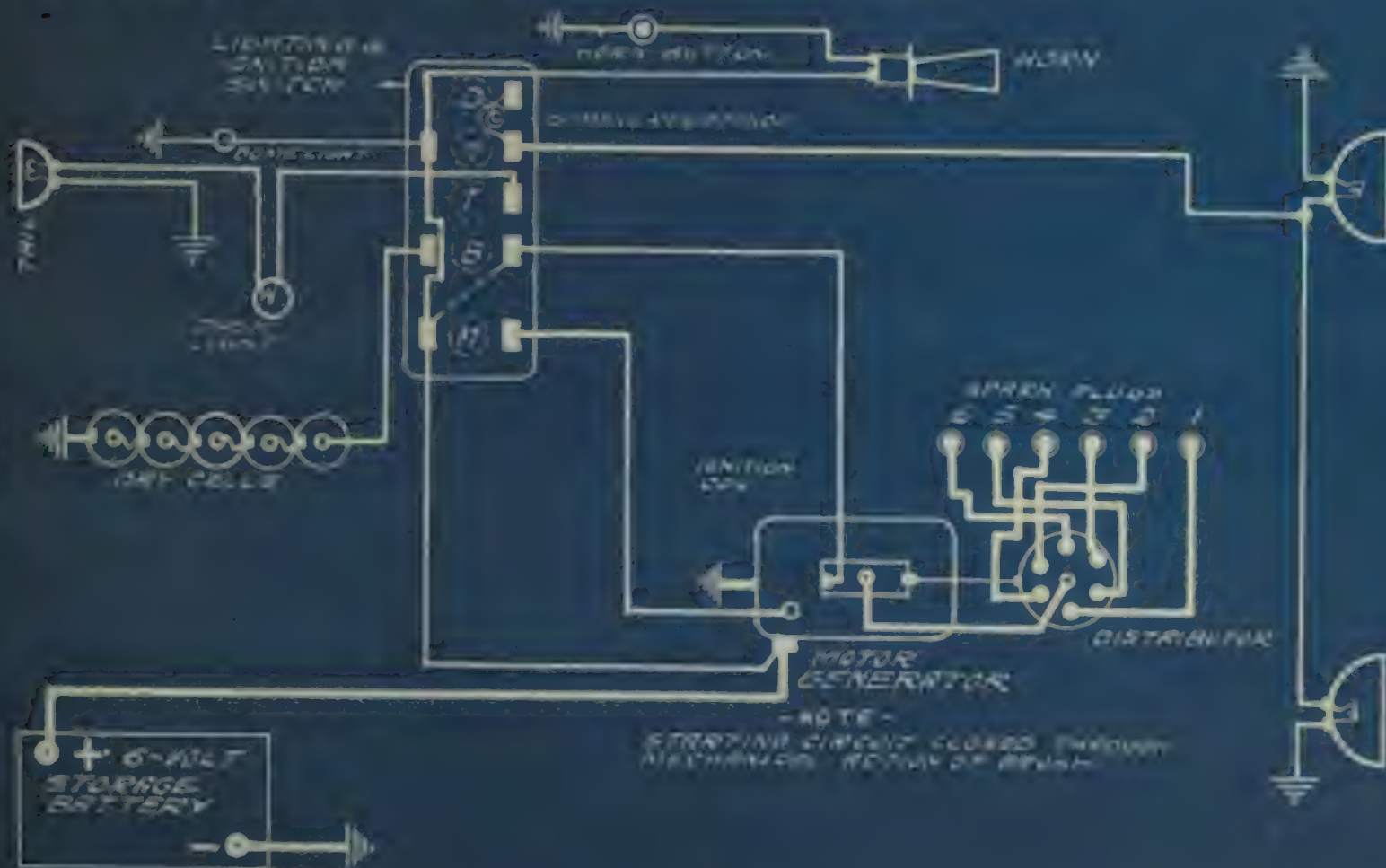


WESTCOTT  
ZELCO SYSTEM

1916

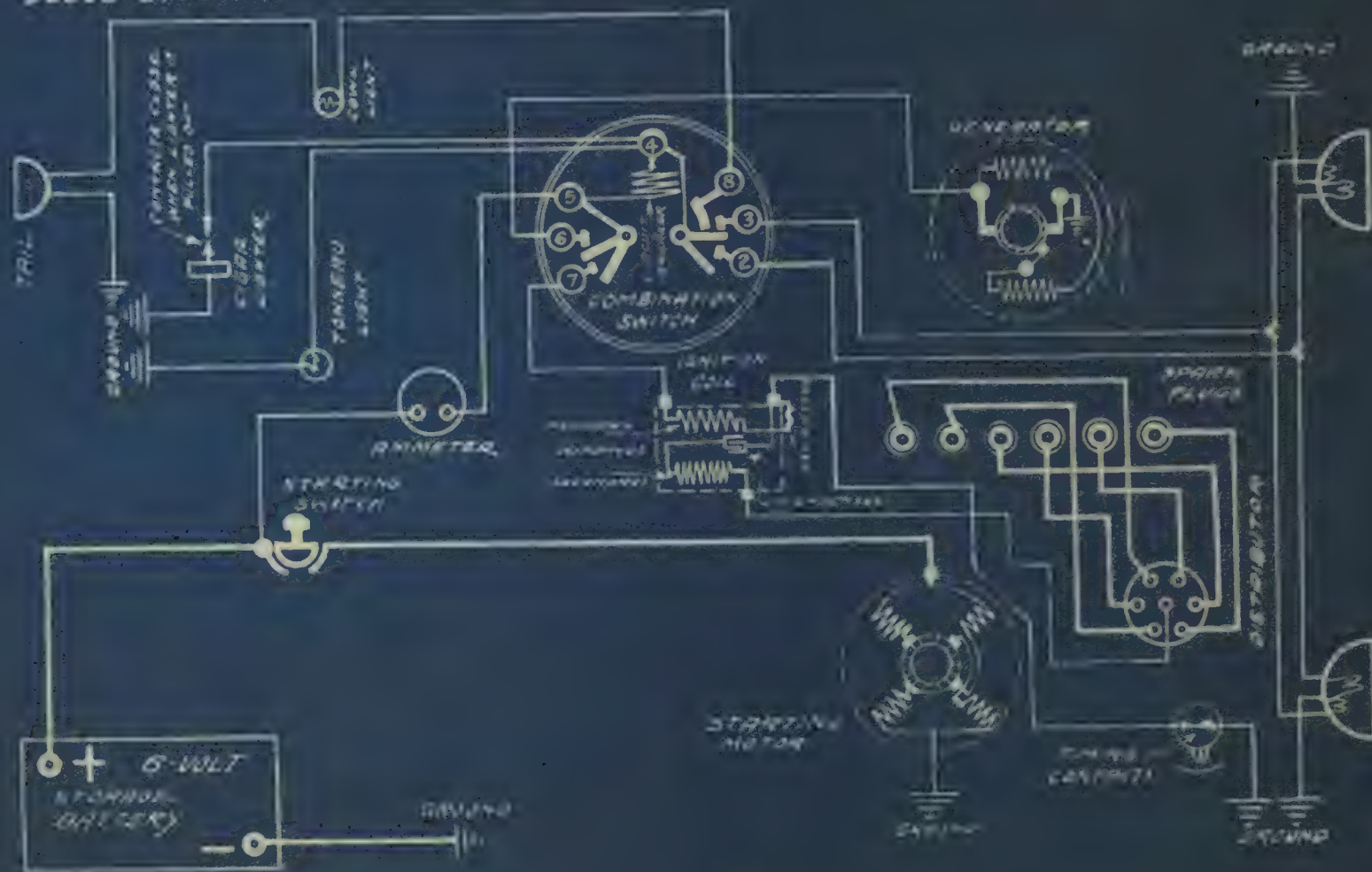
U-50 & O-35

PAGE 11 PAGE 40 5251



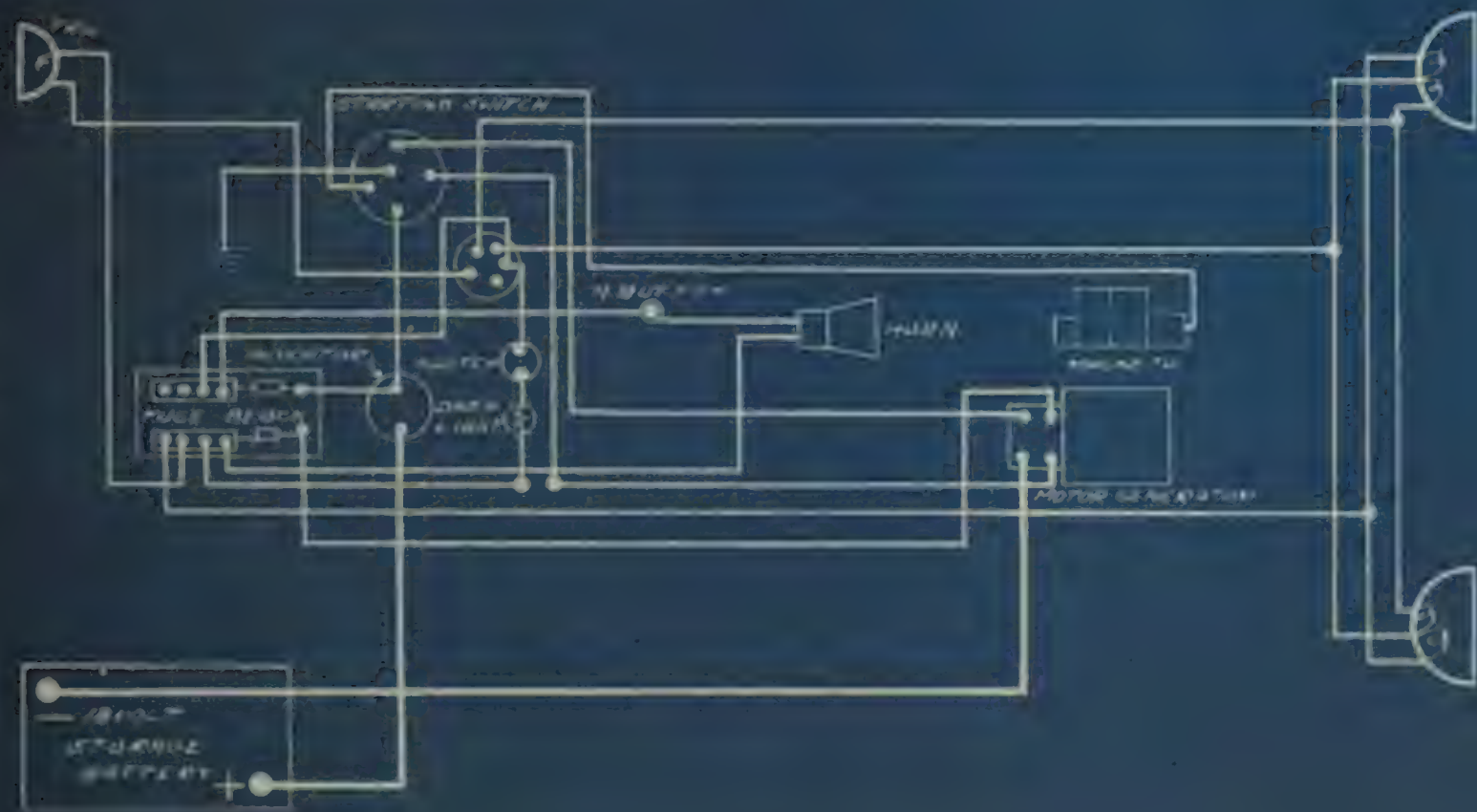
# WESTCOTT 1917-1918-1919 DELCO SYSTEM

FROM WESTCOTT 1917 B.K.



# WHITE 1913 ENTZ SYSTEM

FROM WHITE INVENTOR

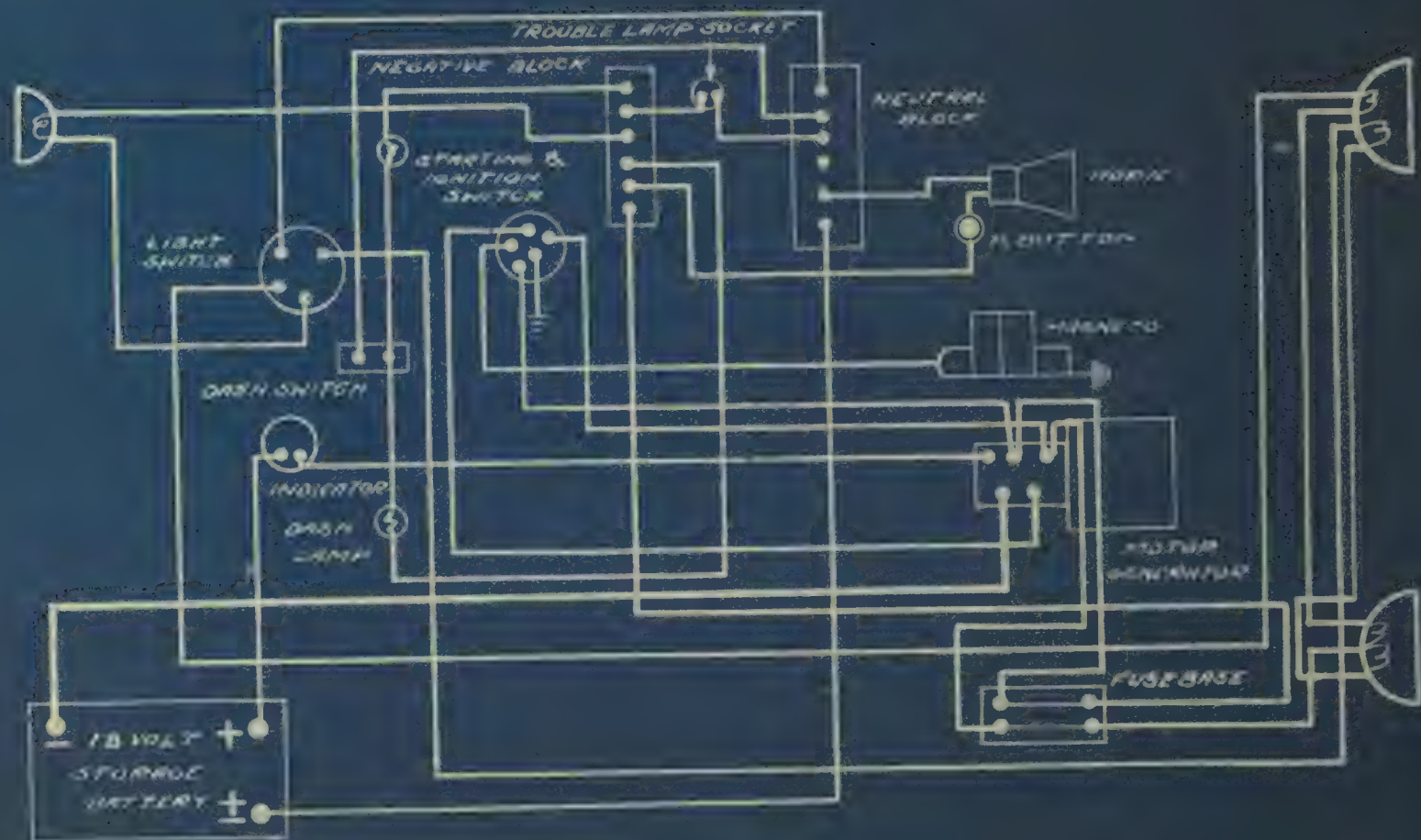




# WHITE 1914 GAG

WHITE-ENTZ SYSTEM

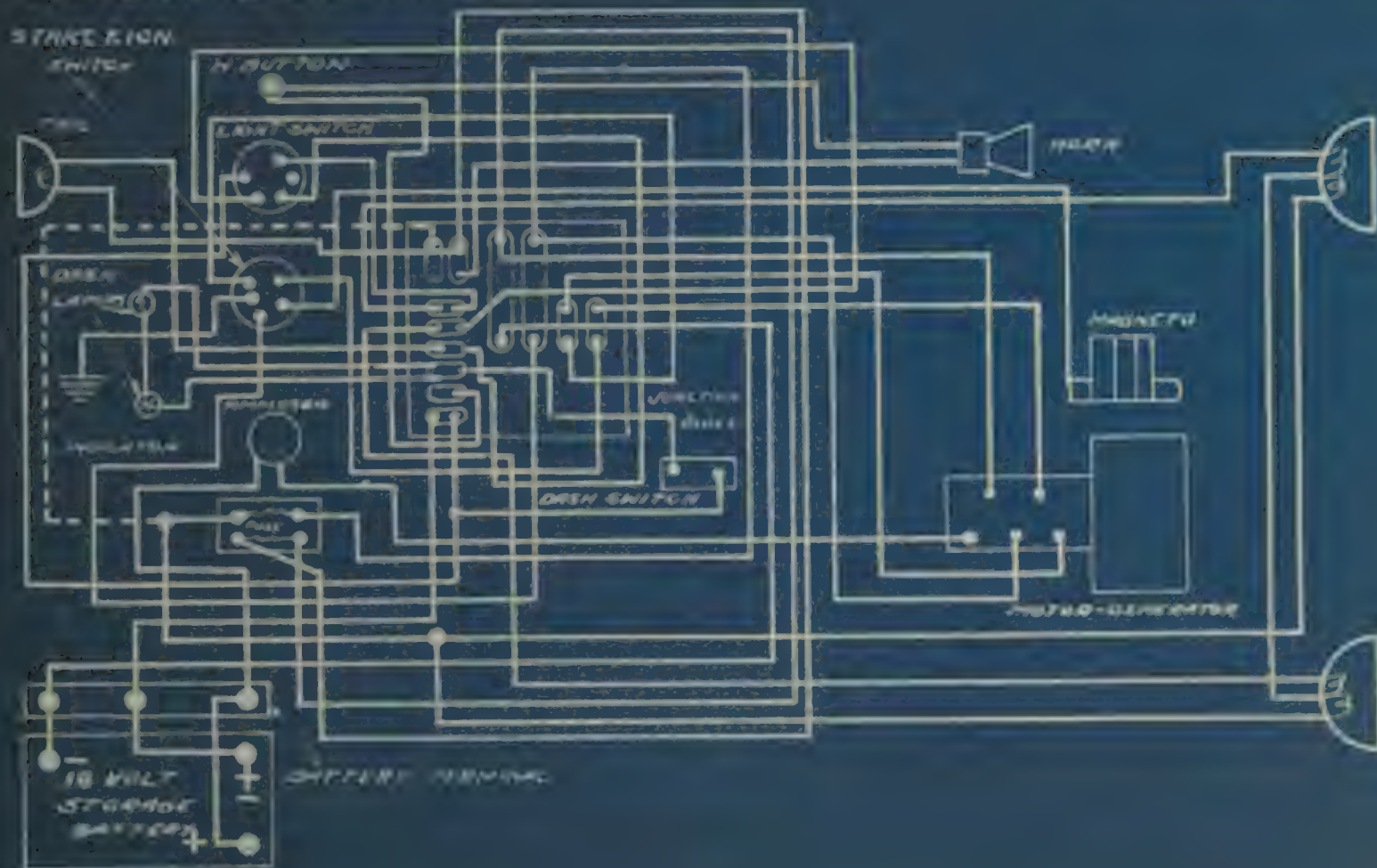
FRONT WHITE BLUEPRINT



# WHITE 1914 WHITE-ENTZ SYSTEM

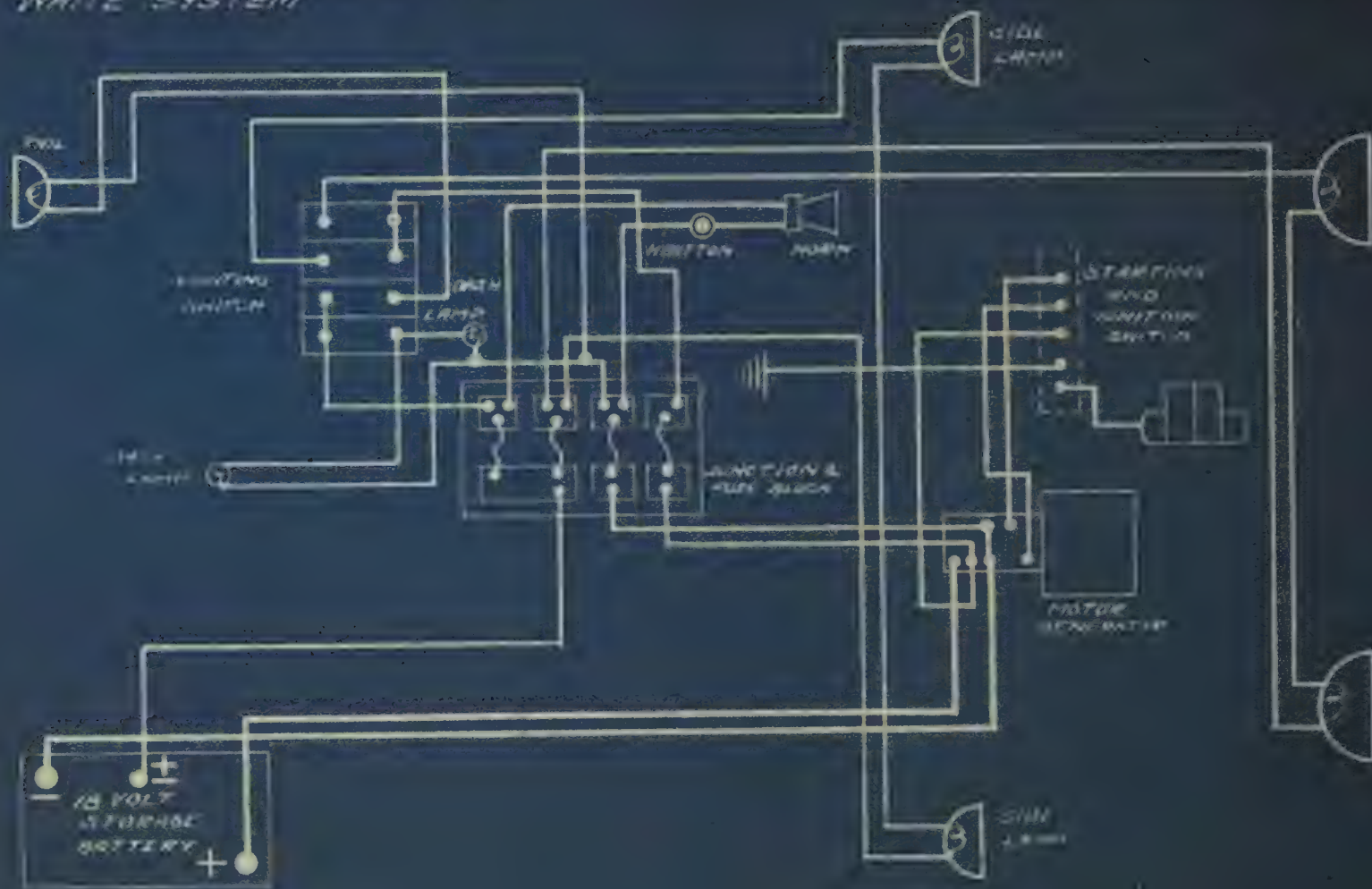
GAGR

FROM HERE AT



# WHITE 1916-17 WHITE SYSTEM

FROM WHITE INST. BK.



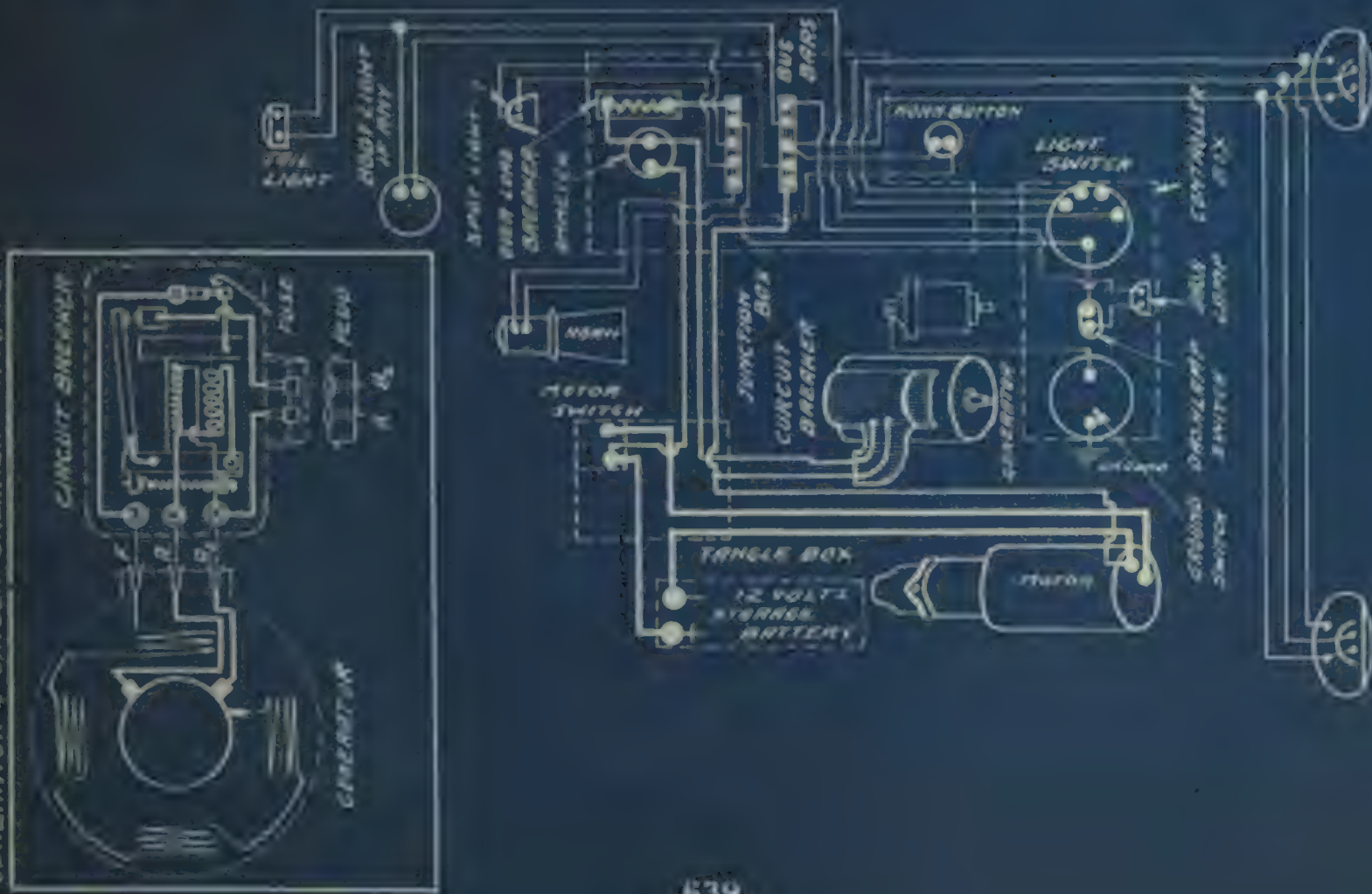


WHITE 1917-8-9  
LEECE-NEVILLE SYSTEM

"G.M."

FROM L.H. BULLETIN #2

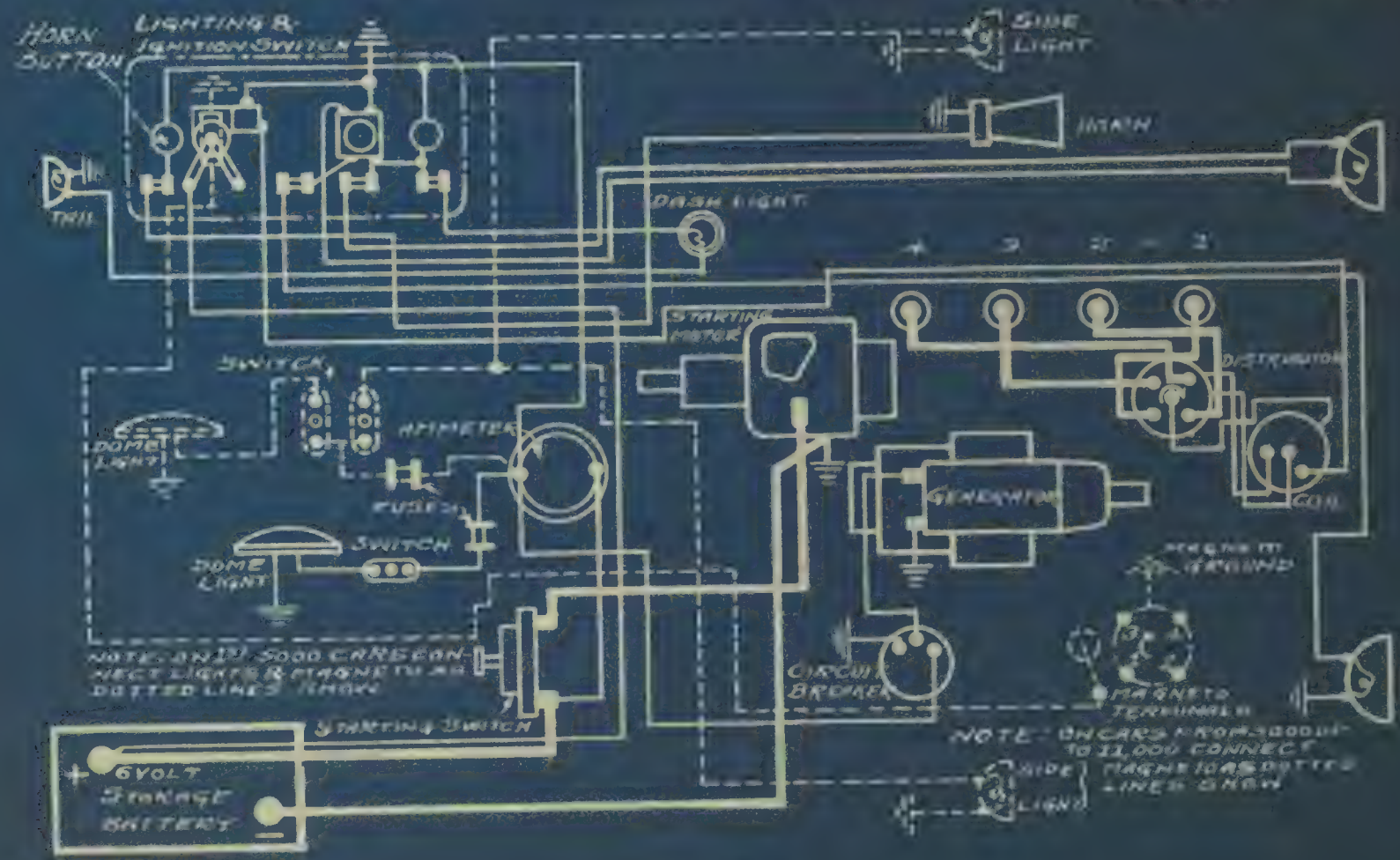
GENERATOR & CIRCUIT BREAKER CIRCUITS



# WILLYS-KNIGHT 1916 84-C

## AUTOLITE SYSTEM

FROM MFRS. B-P 19864-16809 & 15600





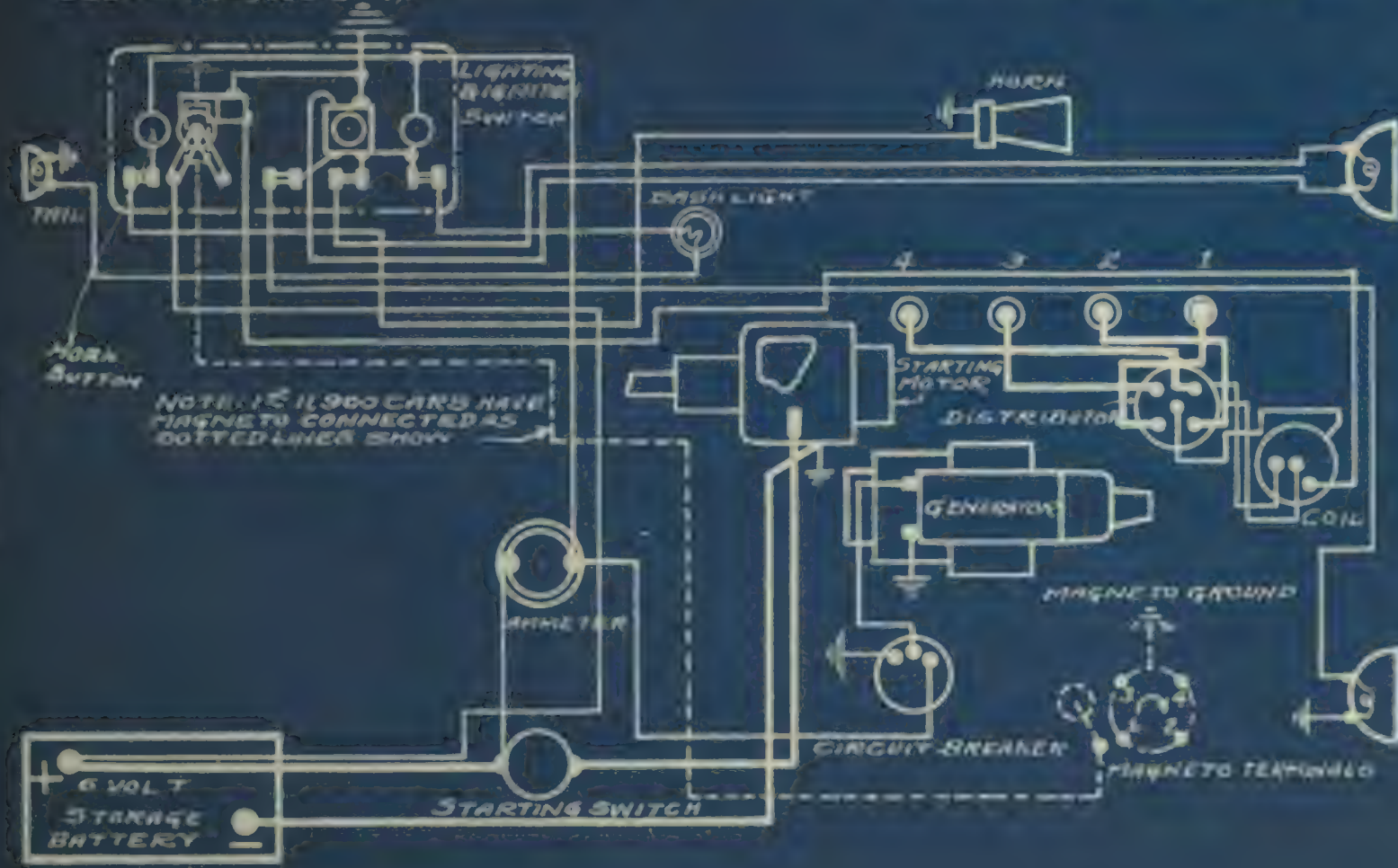
# WILLYS-KNIGHT 1916

AUTOLITE SYSTEM

USE AFTER 11,900 CARS

84-R

FROM MFRS. B-N 19820 & 15712

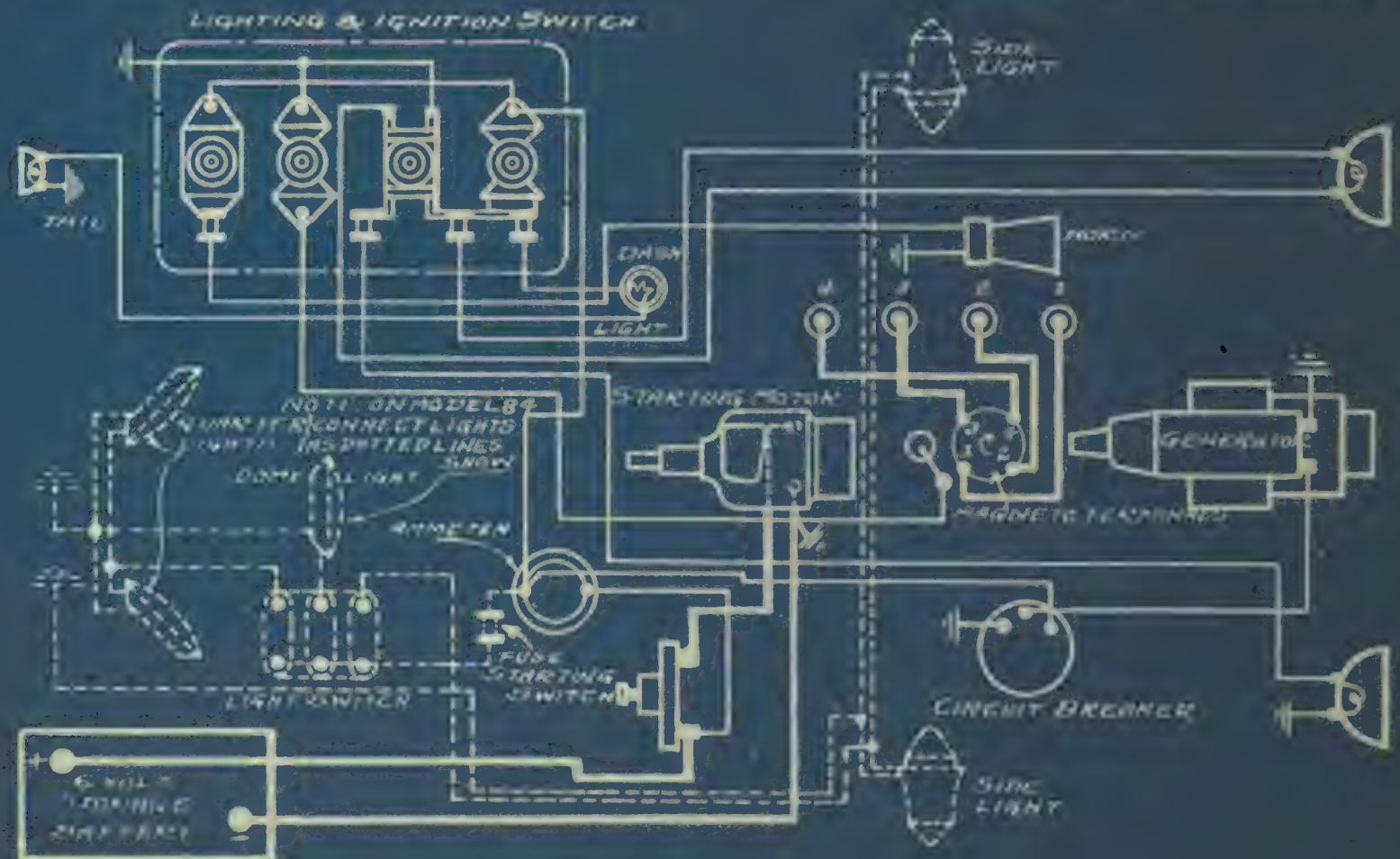




# WILLYS-KNIGHT 1916 84&84-T

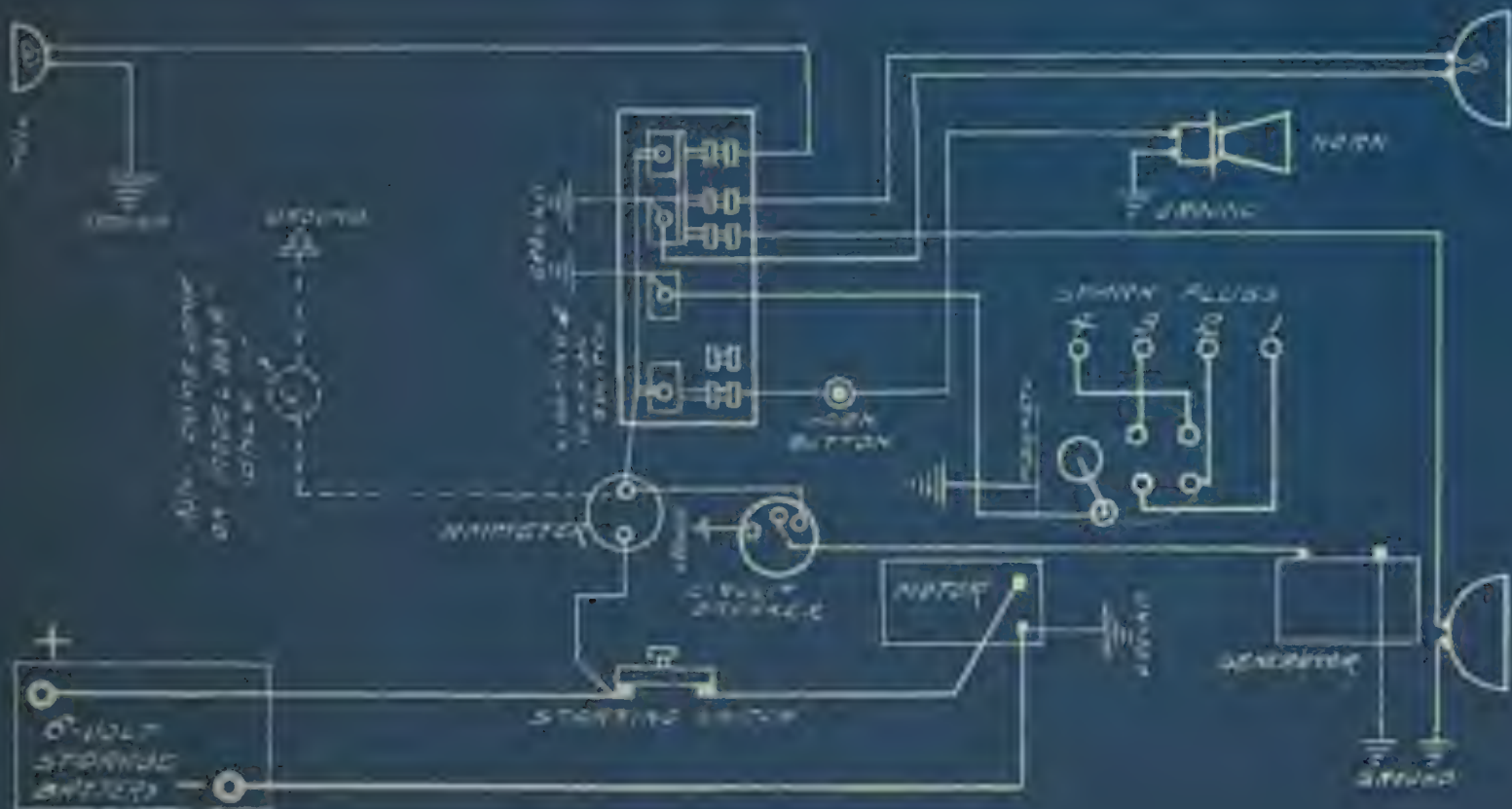
AUTOLITE SYSTEM

FROM MFRS B-P 153258 16J00



84T 84BT 83R 1916

REPORT NUMBER: DAH / 87062-0225

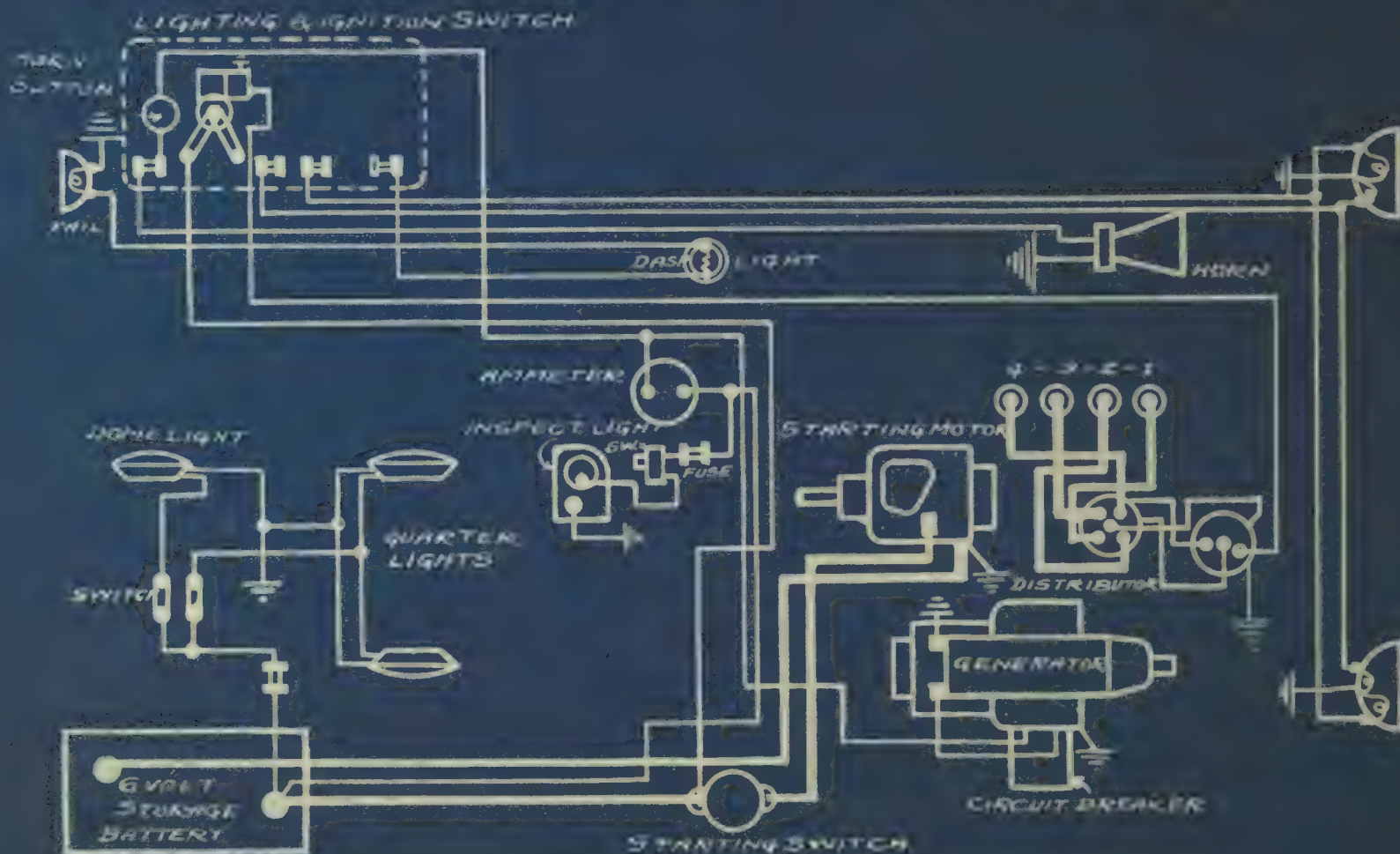


# WILLYS-KNIGHT 1917&18

## AUTOLITE SYSTEM

88-4-C

FROM MENS. 84-103910



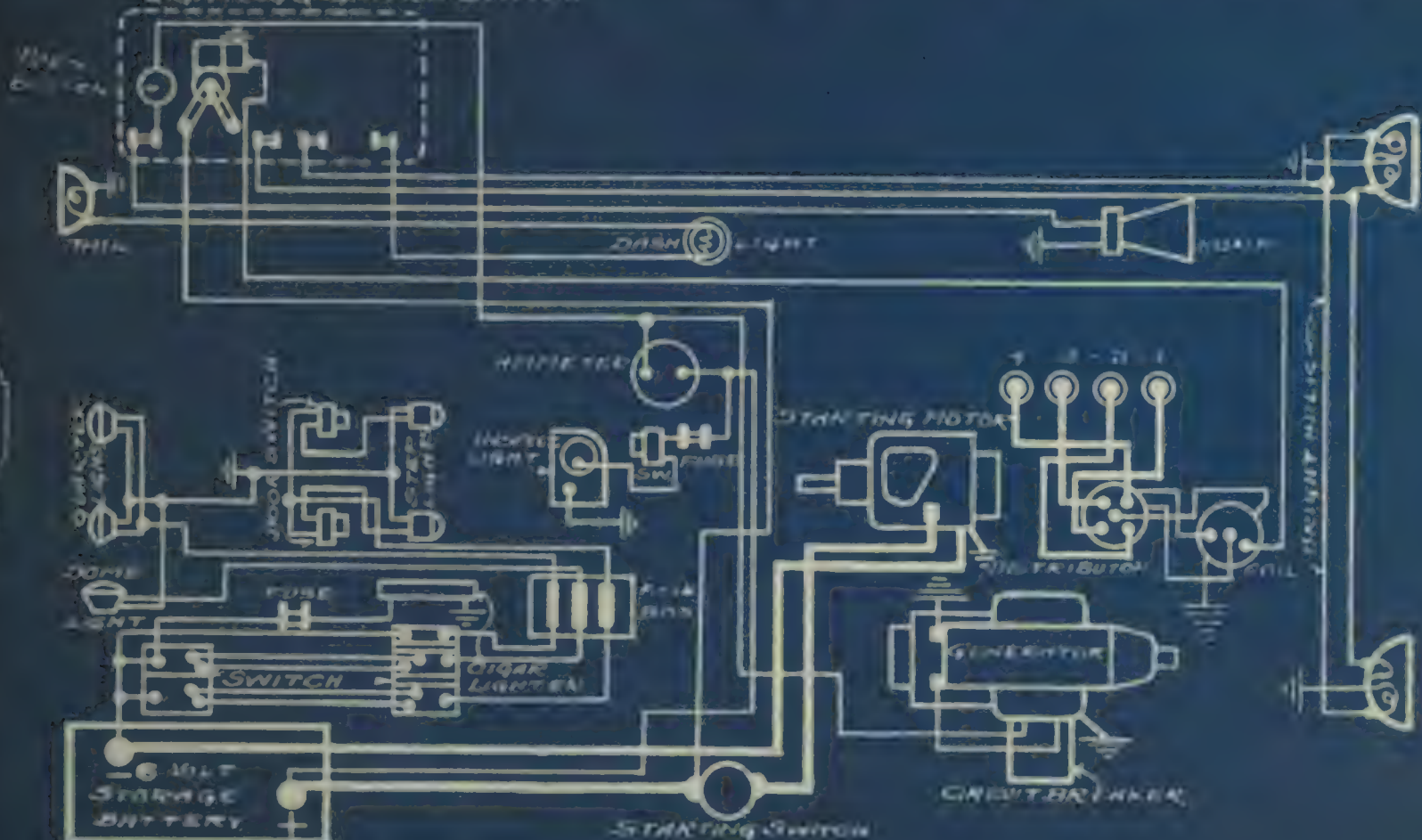


# WILLYS-KNIGHT 1917&18

88-4-LIM

FROM MERG. B-P 104251

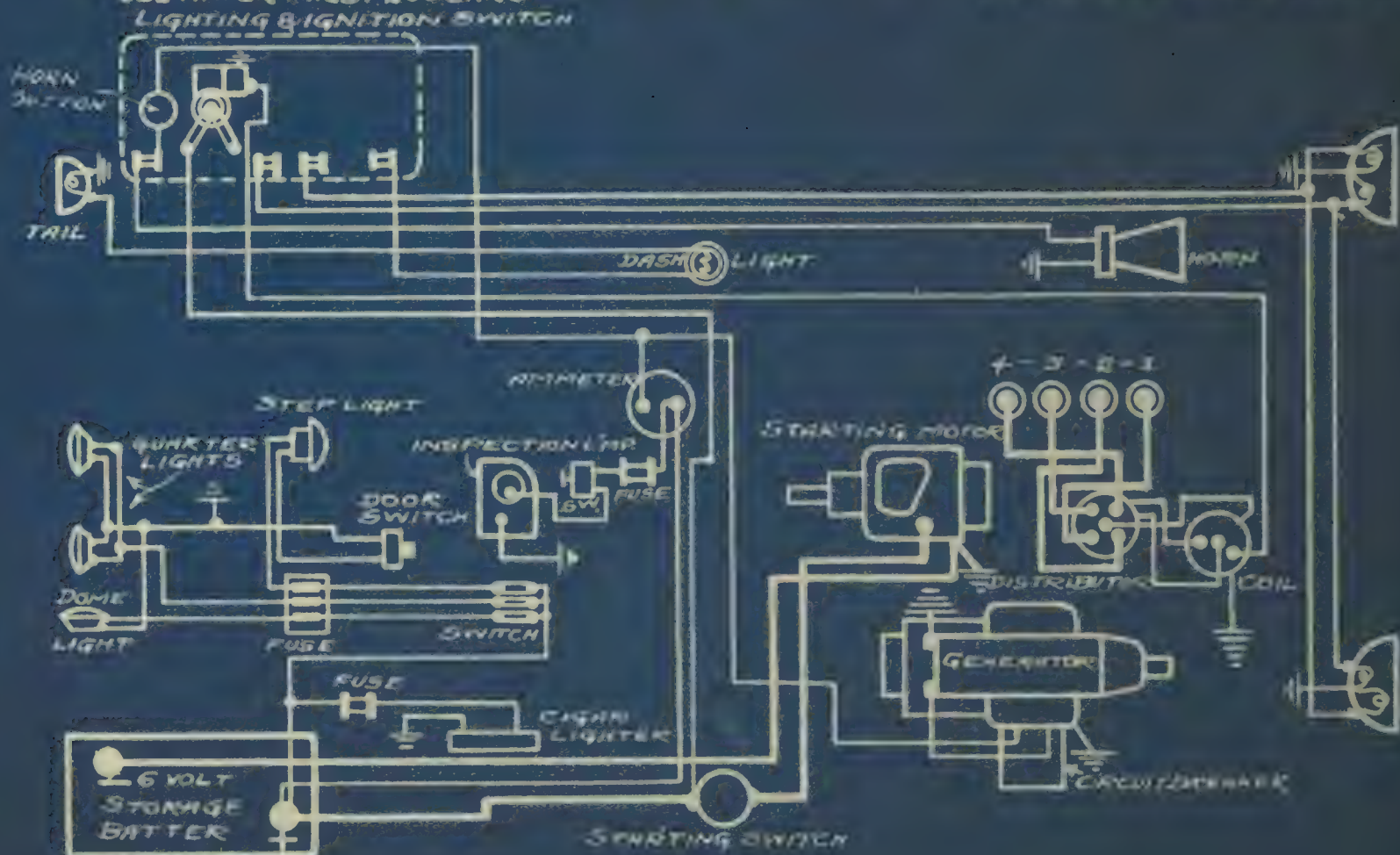
AUTOLITE SYSTEM  
USE AFTER 12-1000 AND  
LIGHTING & IGNITION SWITCH



# WILLYS-KNIGHT 1917&18 88-4-5N

AUTOLITE SYSTEM  
USE AFTER FIRST 200 CARS

FROM MFRS. B/P 104287

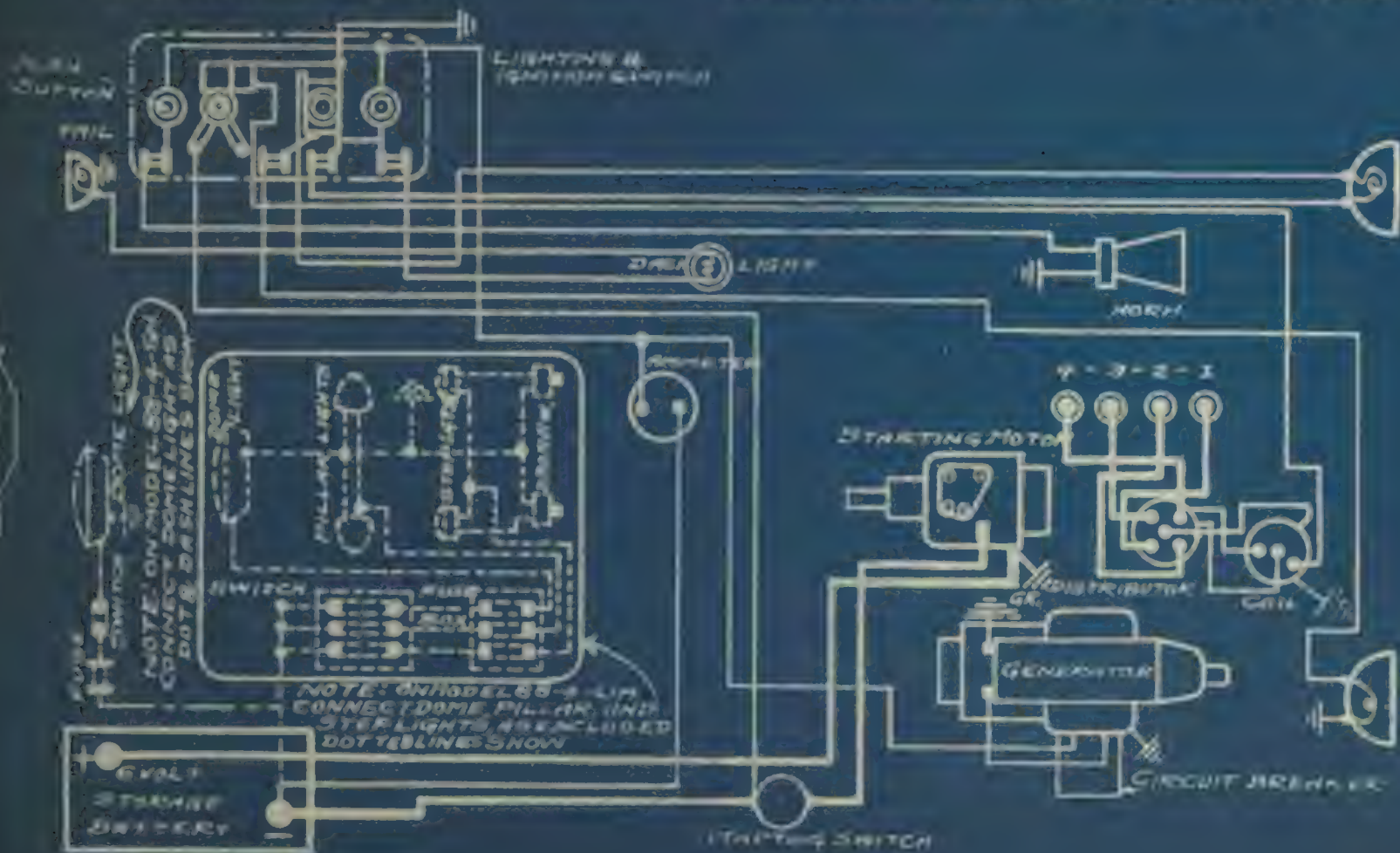




# WILLYS-KNIGHT 1917&18 88-4T 88-4LM & 88-4-SN.

AUTOLITE SYSTEM

FROM MFRS. B/P 100284-19114 & 100509

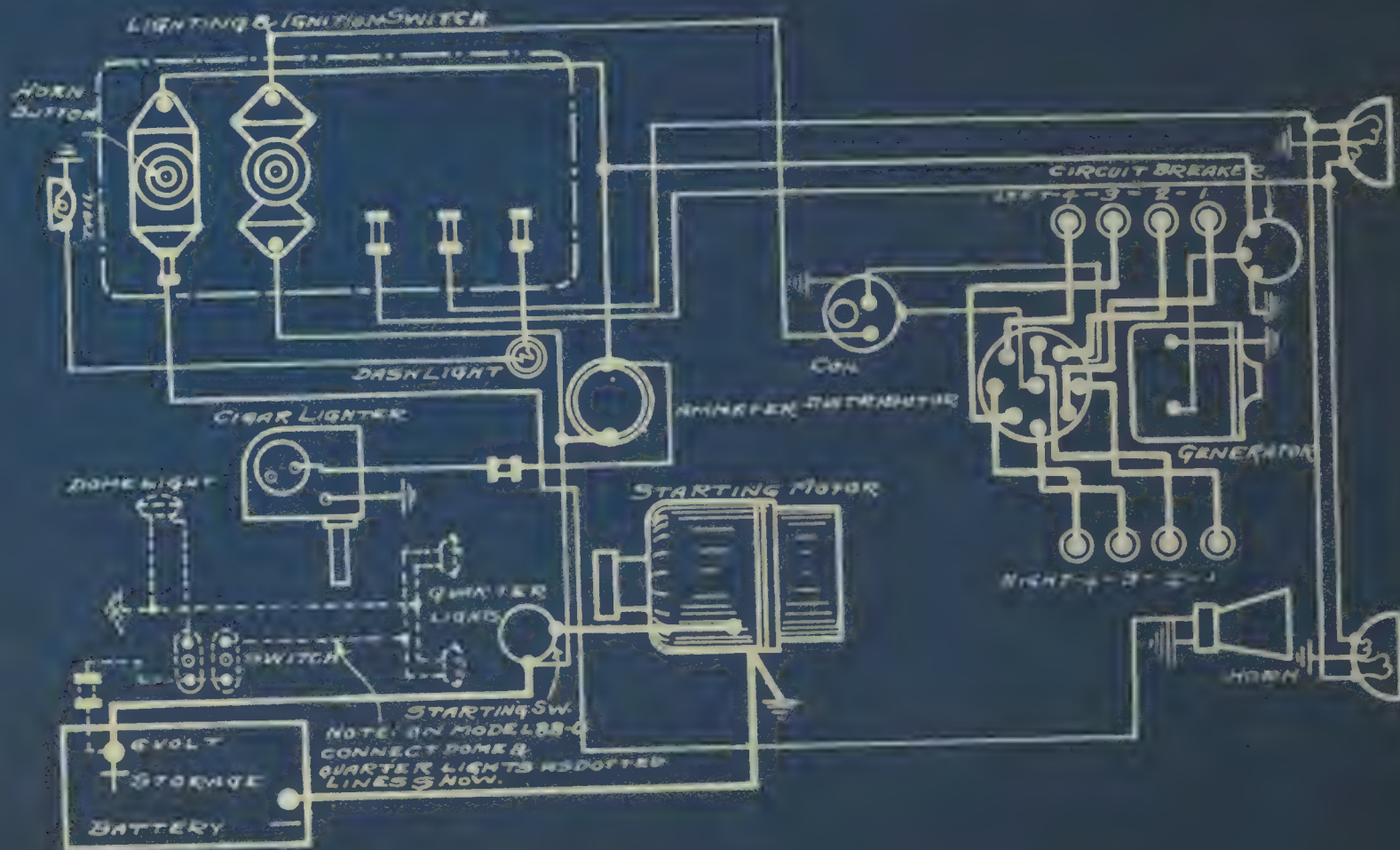




# WILLYS-KNIGHT 1917-18 AUTOLITE SYSTEM

88-8-C&R

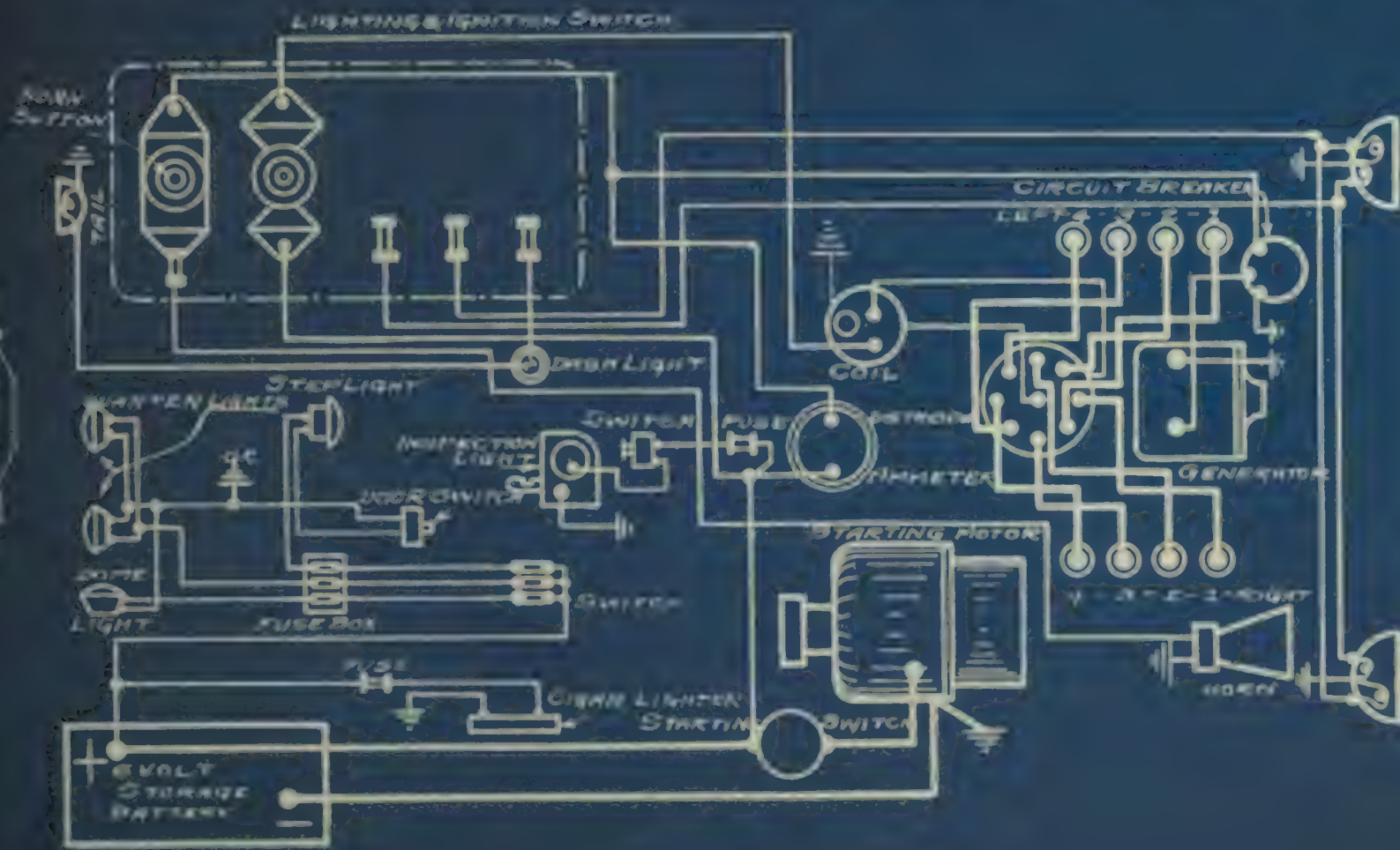
FROM MFRS. B/Ps. 104463 & 103886.



# WILLYS-KNIGHT 1917&18 "88-85N" AUTOLITE SYSTEM

FROM MFRS B/P 100894

Autolite Inc. Parkersburg, W. Va.

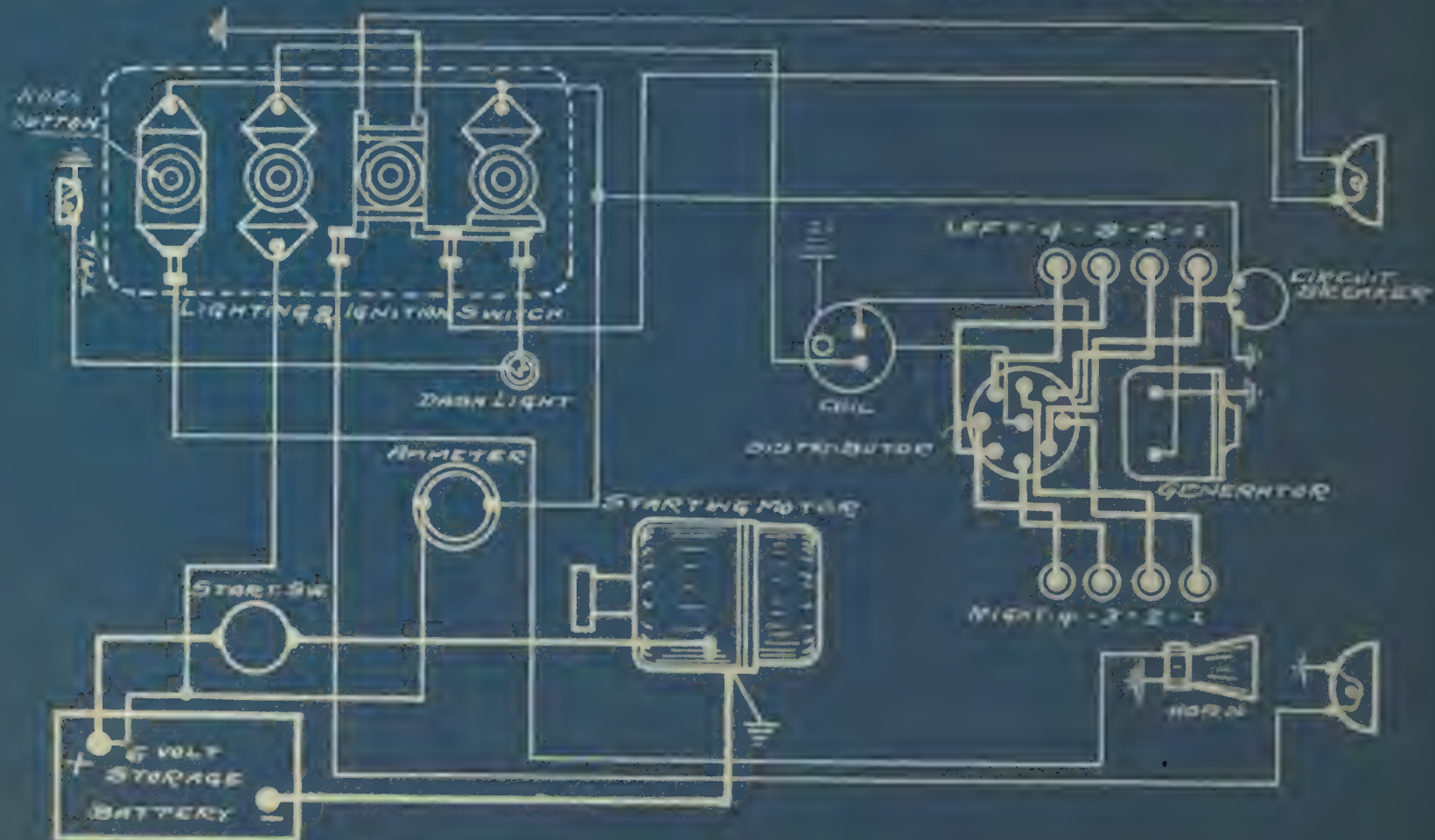




# WILLYS-KNIGHT 1917 88-8T 1918

## AUTOLITE SYSTEM

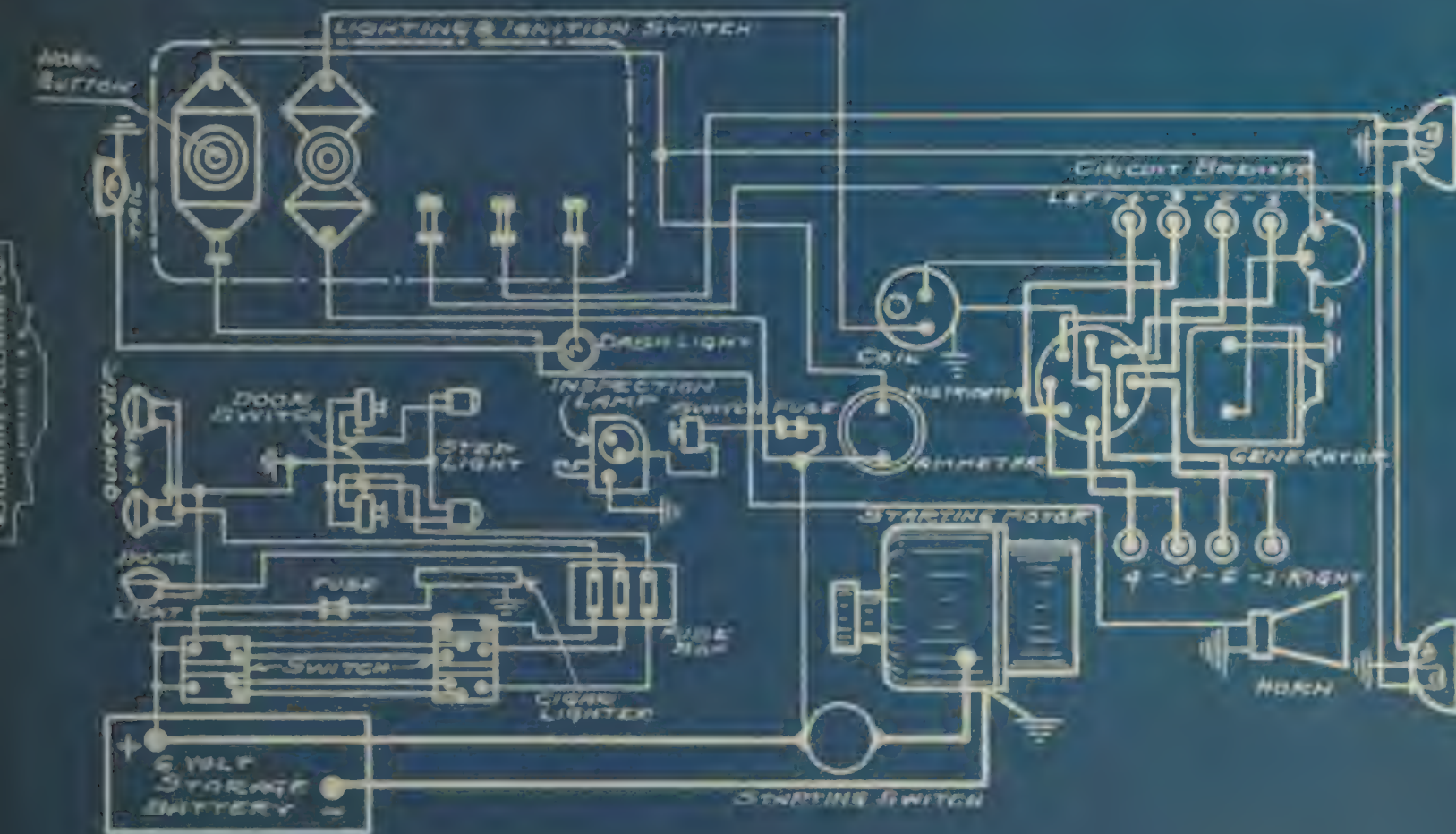
FROM MERS. B/P 100572





# WILLYS-KNIGHT 1917&18 88-8-TC

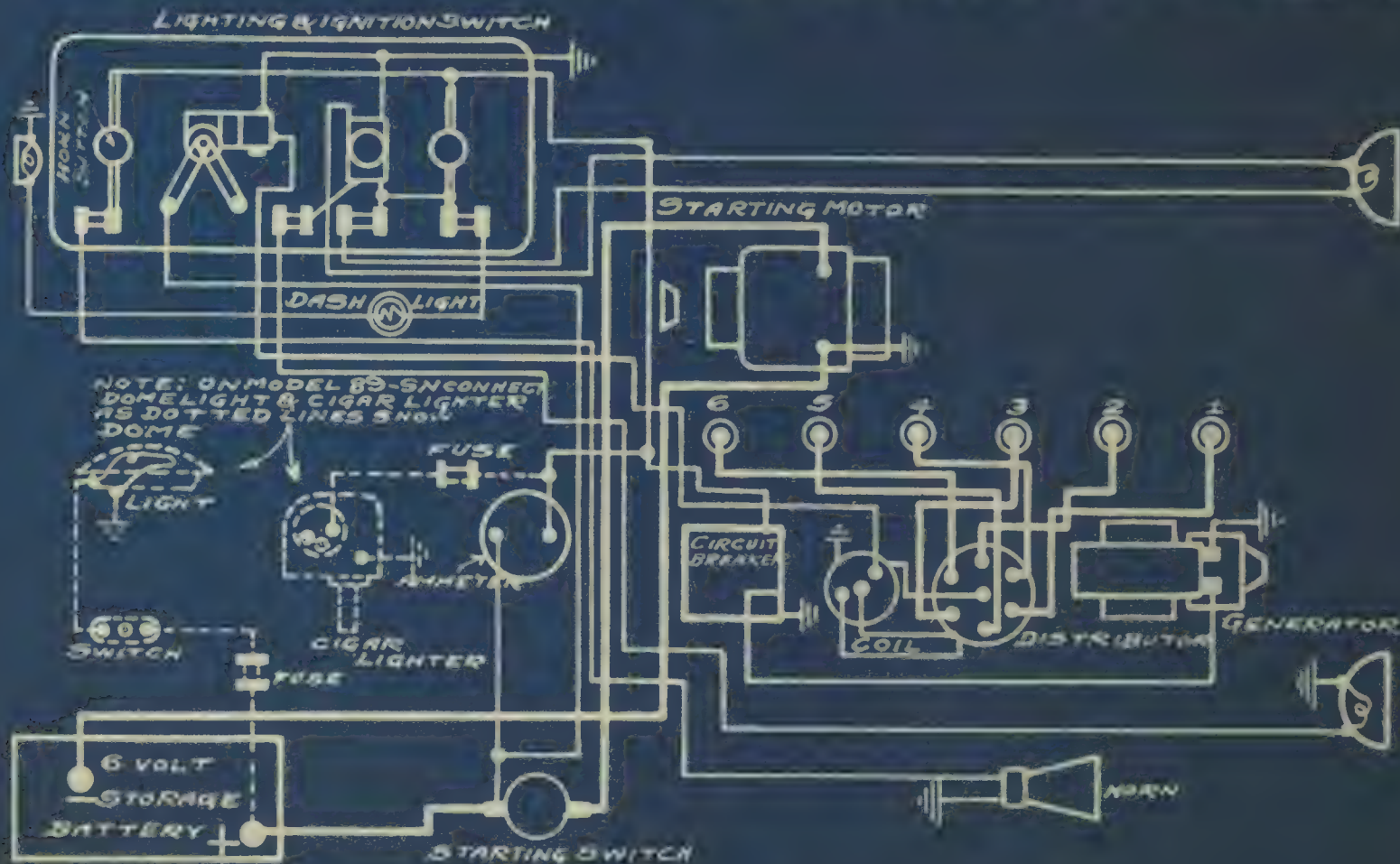
FROM MFRS. B.F. 103946



# WILLYS-KNIGHT 1918 - 89-CLR-SN&T-

AUTOLITE SYSTEM - CONN. IGN.

FROM MFRS. S.P. 101371-101682 & 102135

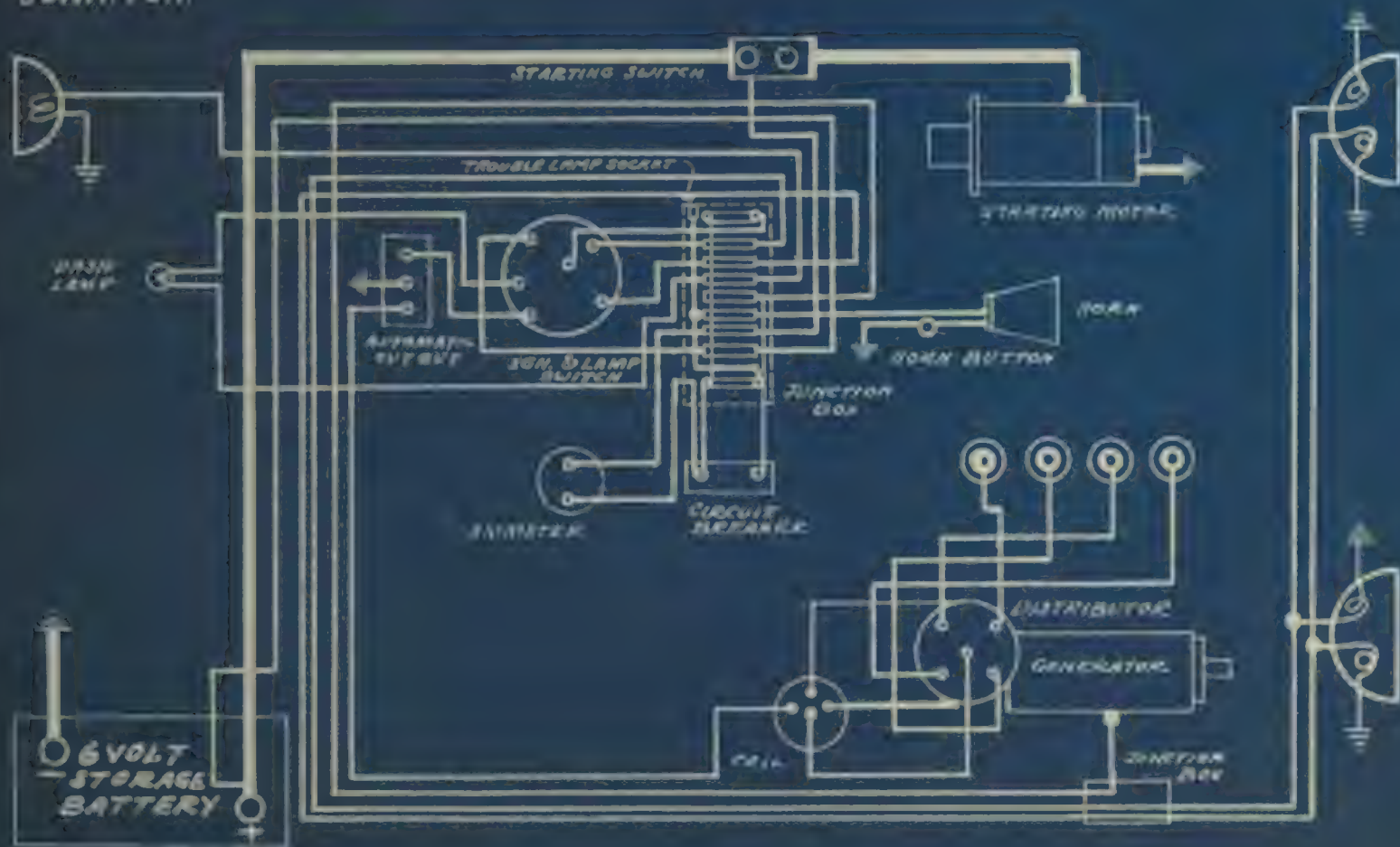


# WILLYS-KNIGHT '20 1920

AUTO LIGHT SYSTEM

CONN. I.G.N.

FROM NIKS B.P. 30347

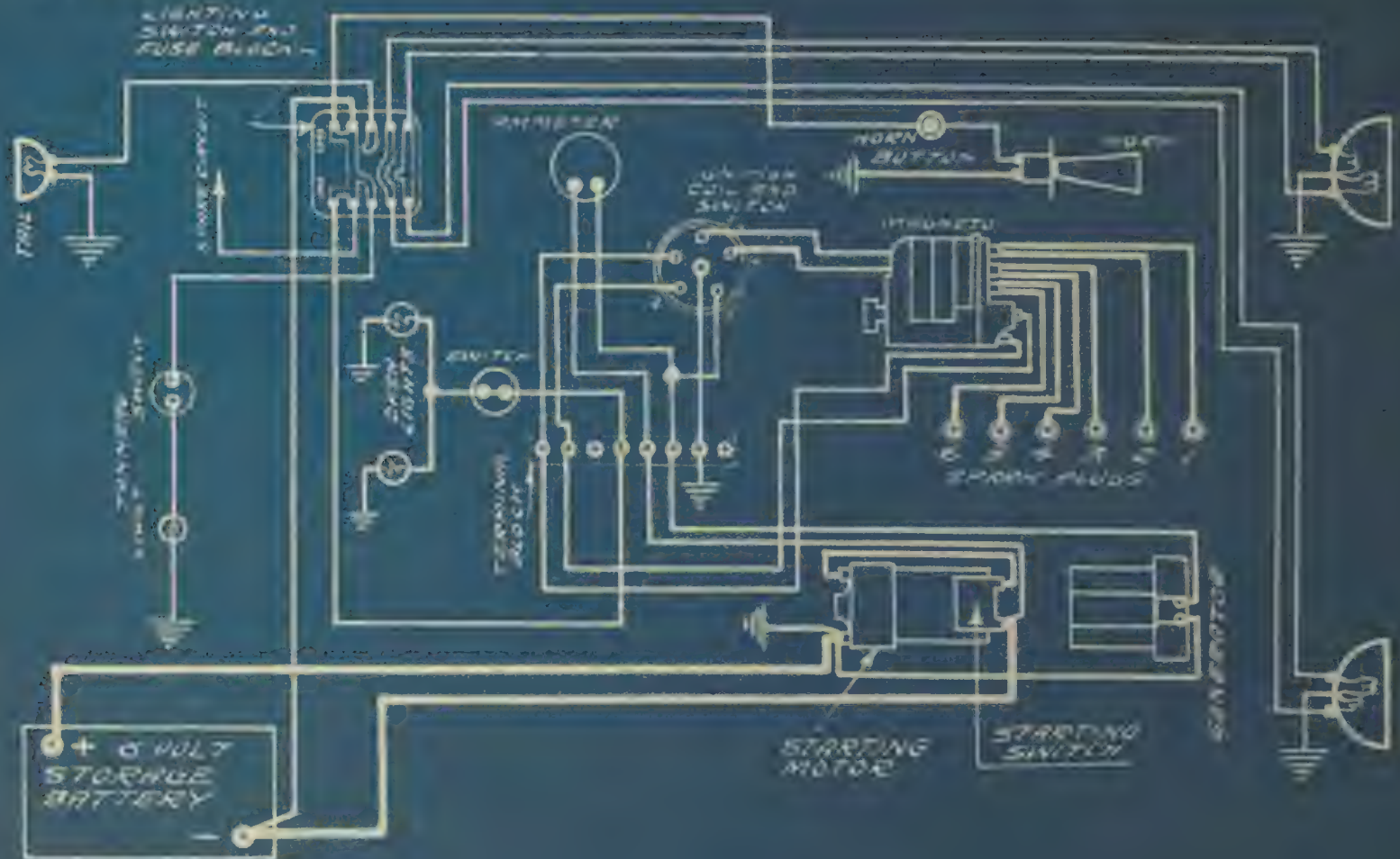




# WINTON 1915 "21" WIRING SYSTEM

1915 "21"

FROM WIRE SKETCH C-564-1

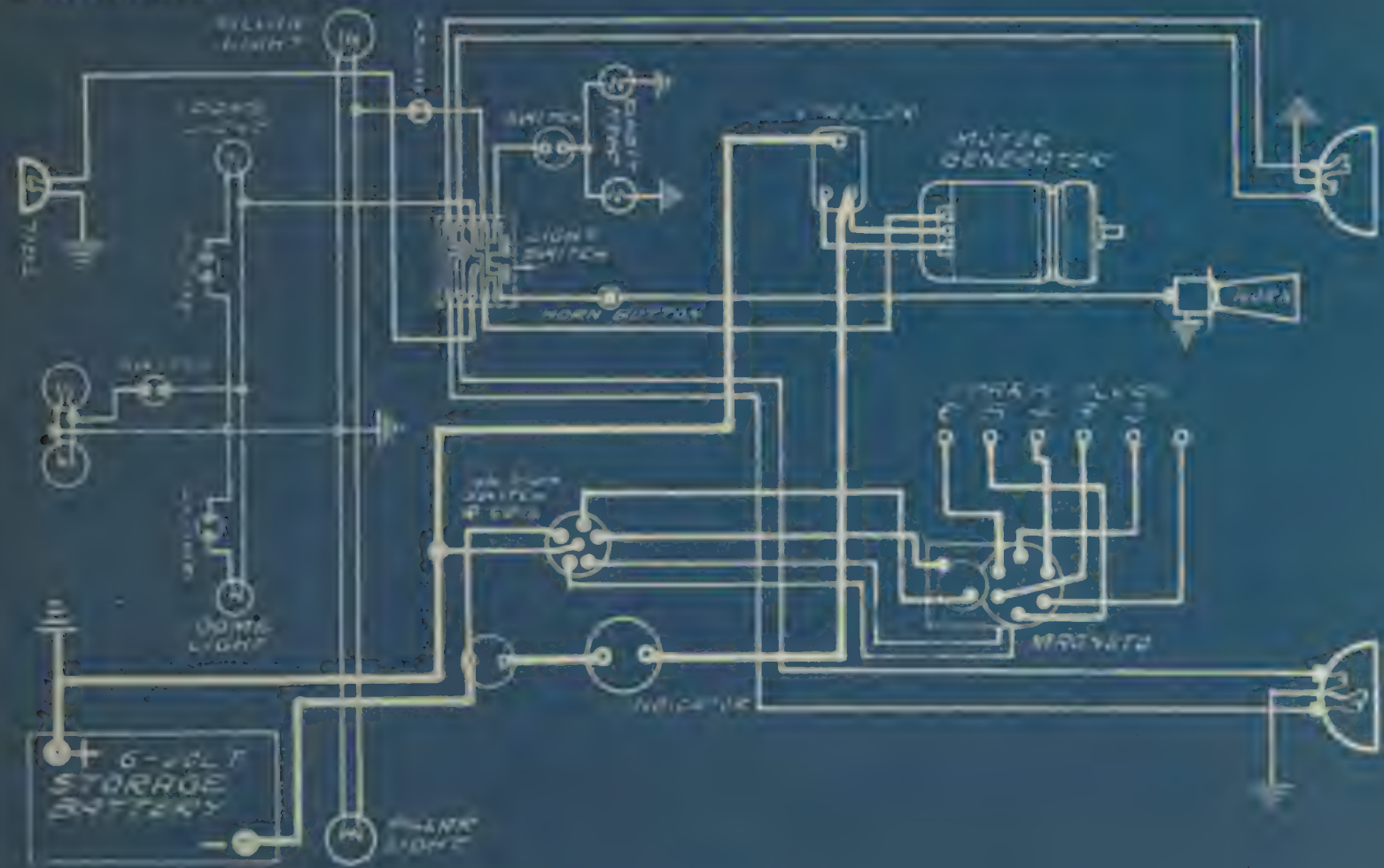


# WINTON 1915

## ERRY AND DAVIS SYSTEM

"21"

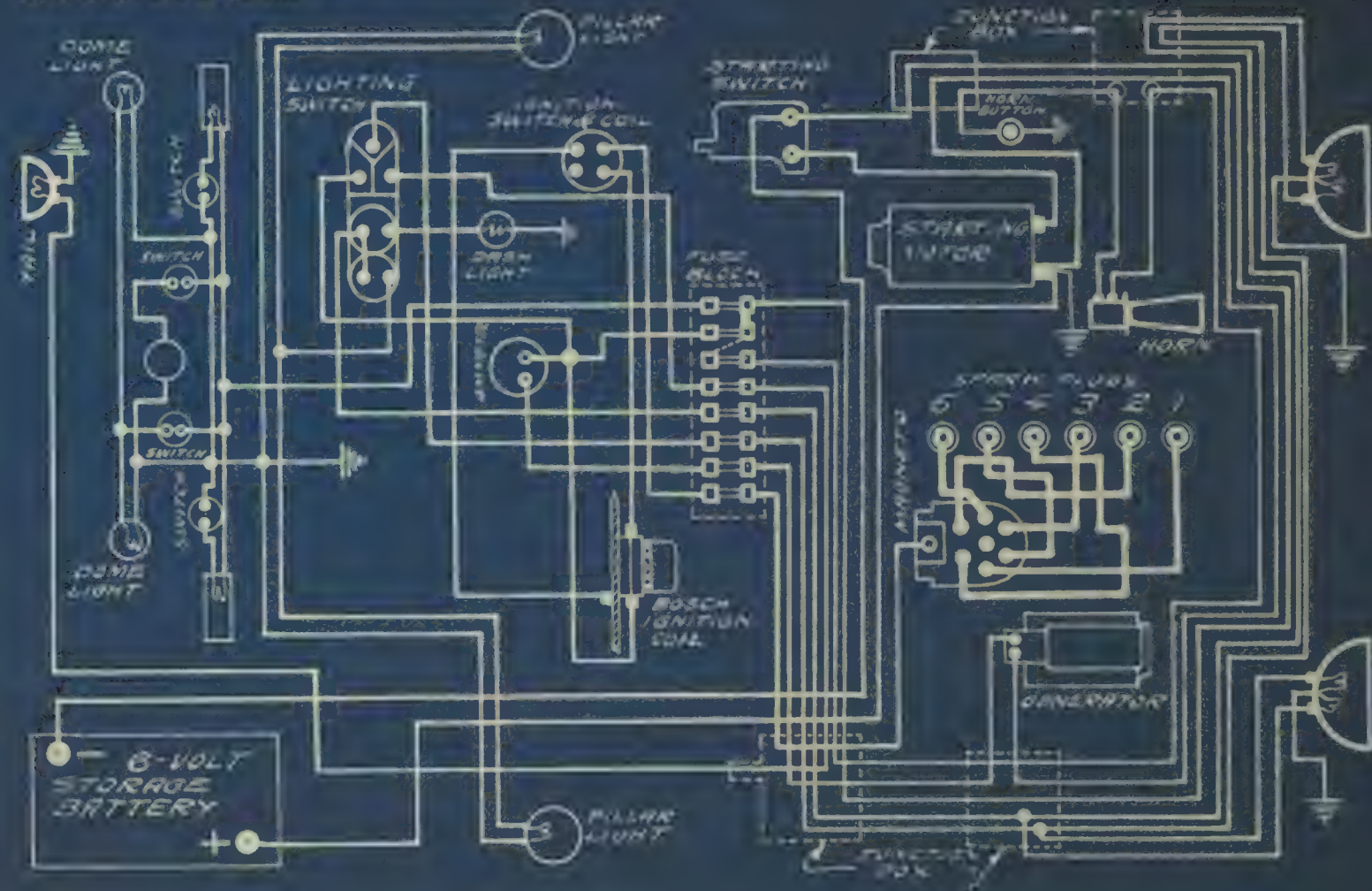
FROM MFRS. SKETCH



# WINTON 1915 "21-A"

BIGUR SYSTEM

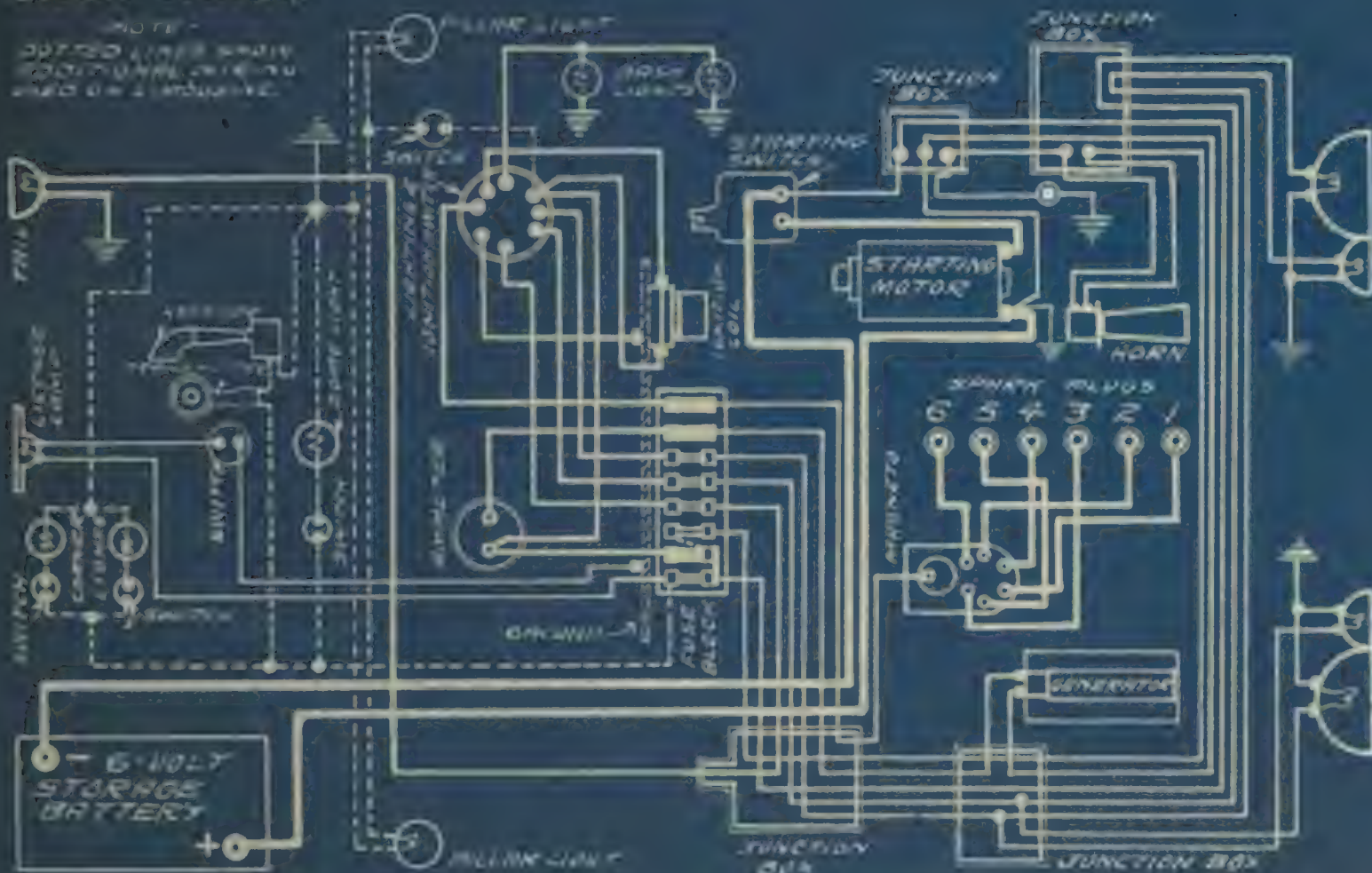
FRONT VIEW SKETCH



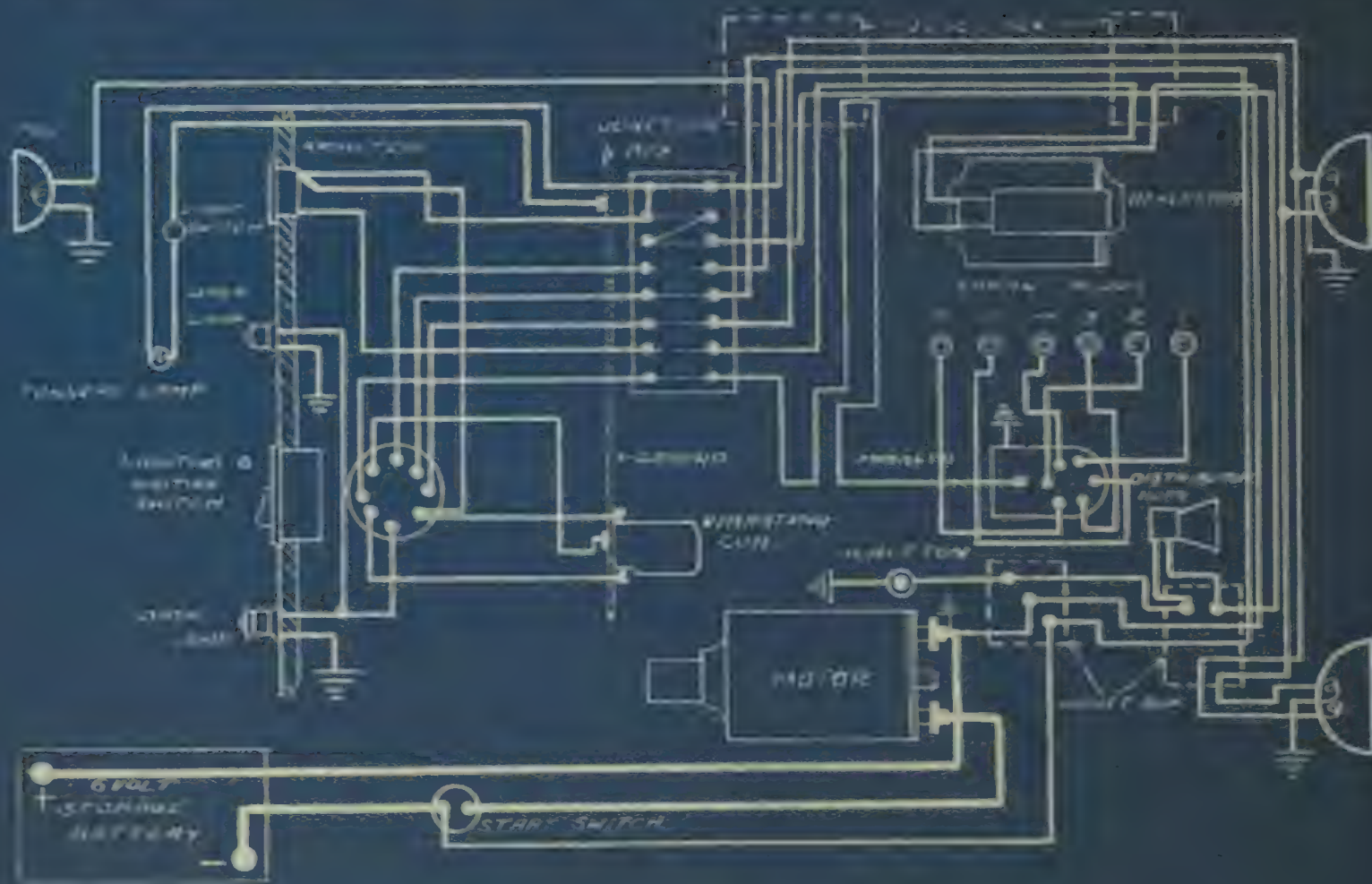


# WINTON 1916 "22" BIZUR SYSTEM

FROM WINTON INSTR. BK.



## WINTON MODEL 22 1917-1918

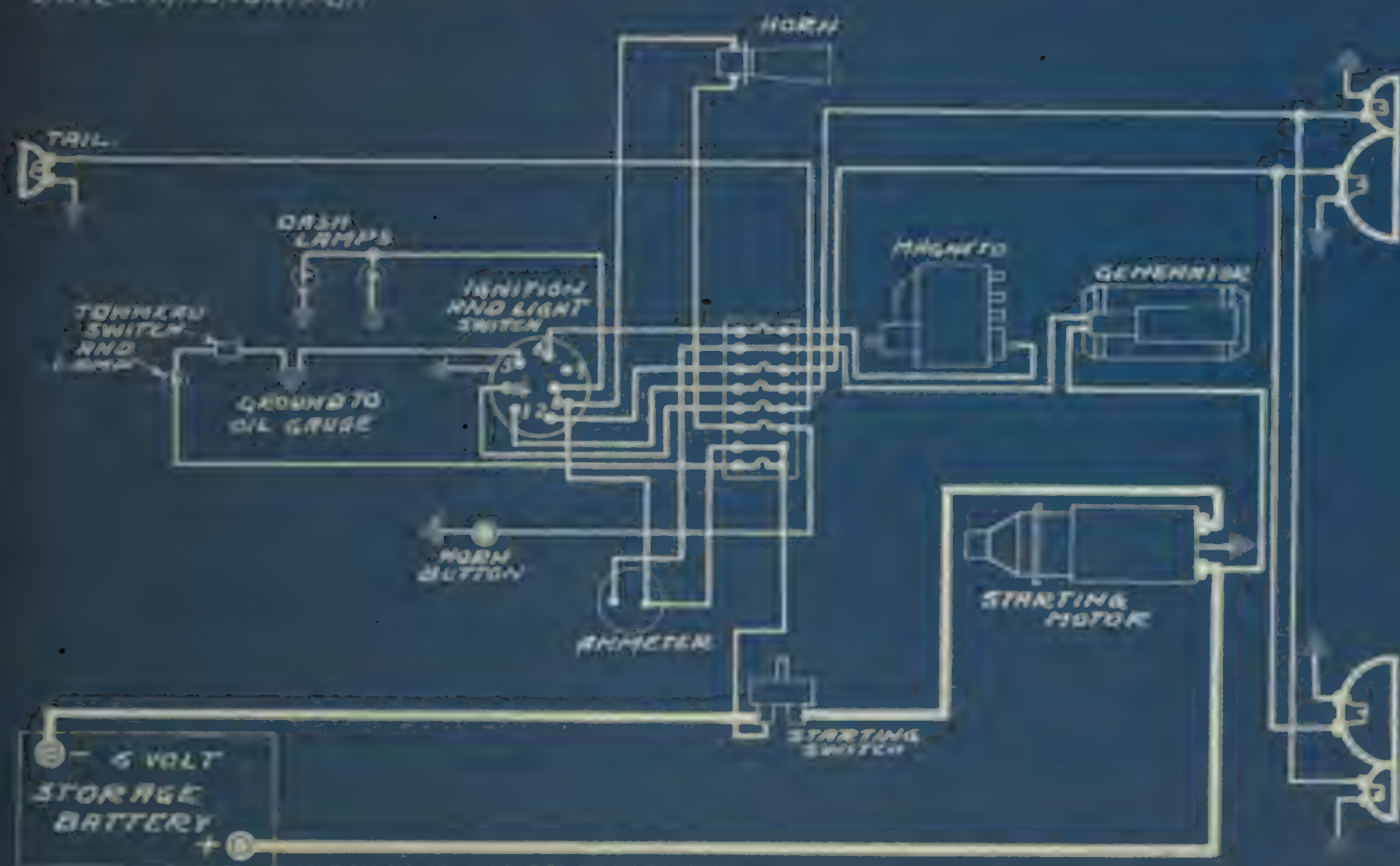
$$2.0010 \times 10^{-1} = 2.24 \times 10^{-1}.$$


# WINTON MODELS 24 & 25 1920

BIZME SYSTEM

JOSEPH H. HARRINGTON

FROM FILE NO. 22-2329

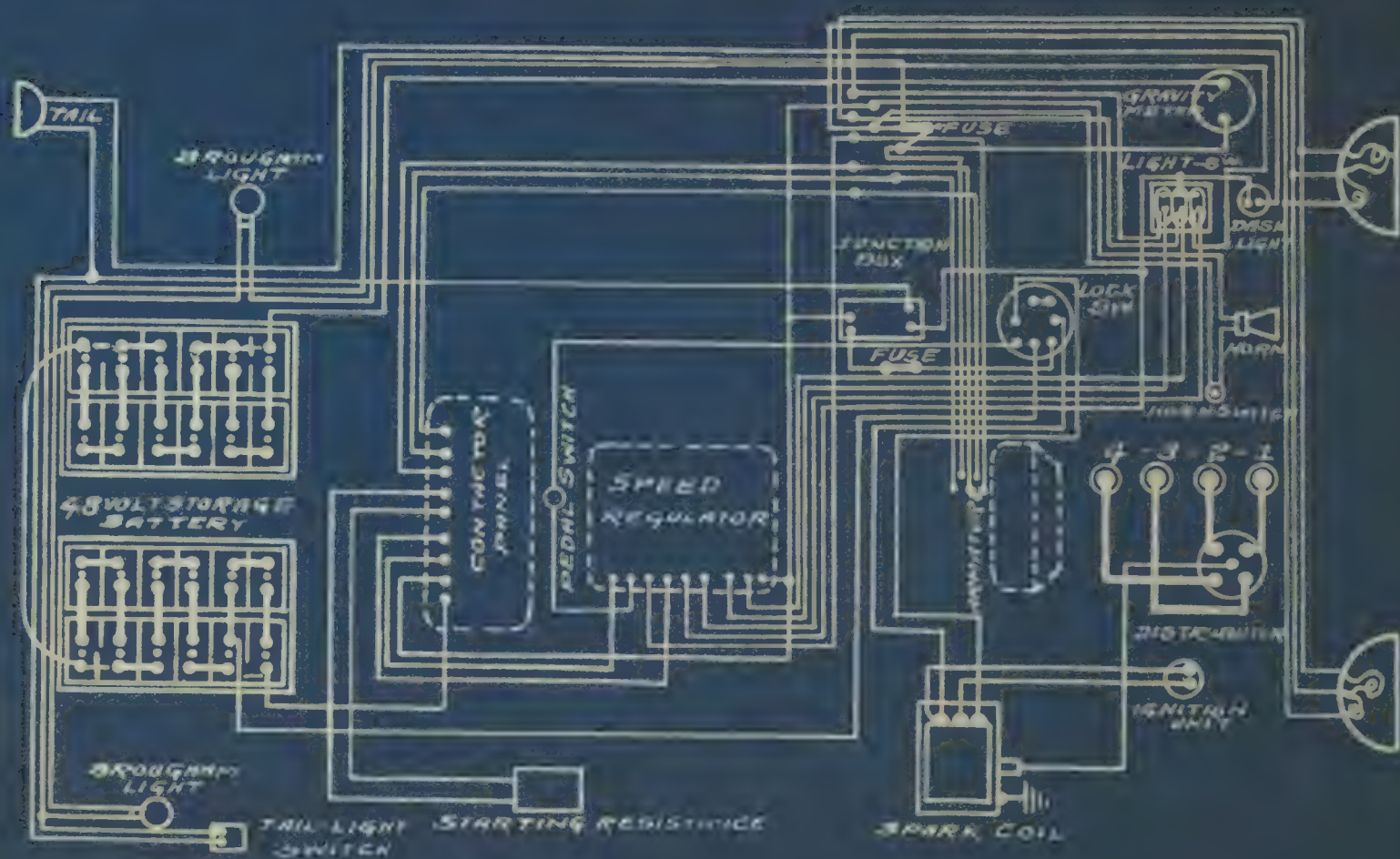




# WOODS DUAL-POWER 1917 - MODEL 1600

WOODS SYSTEM

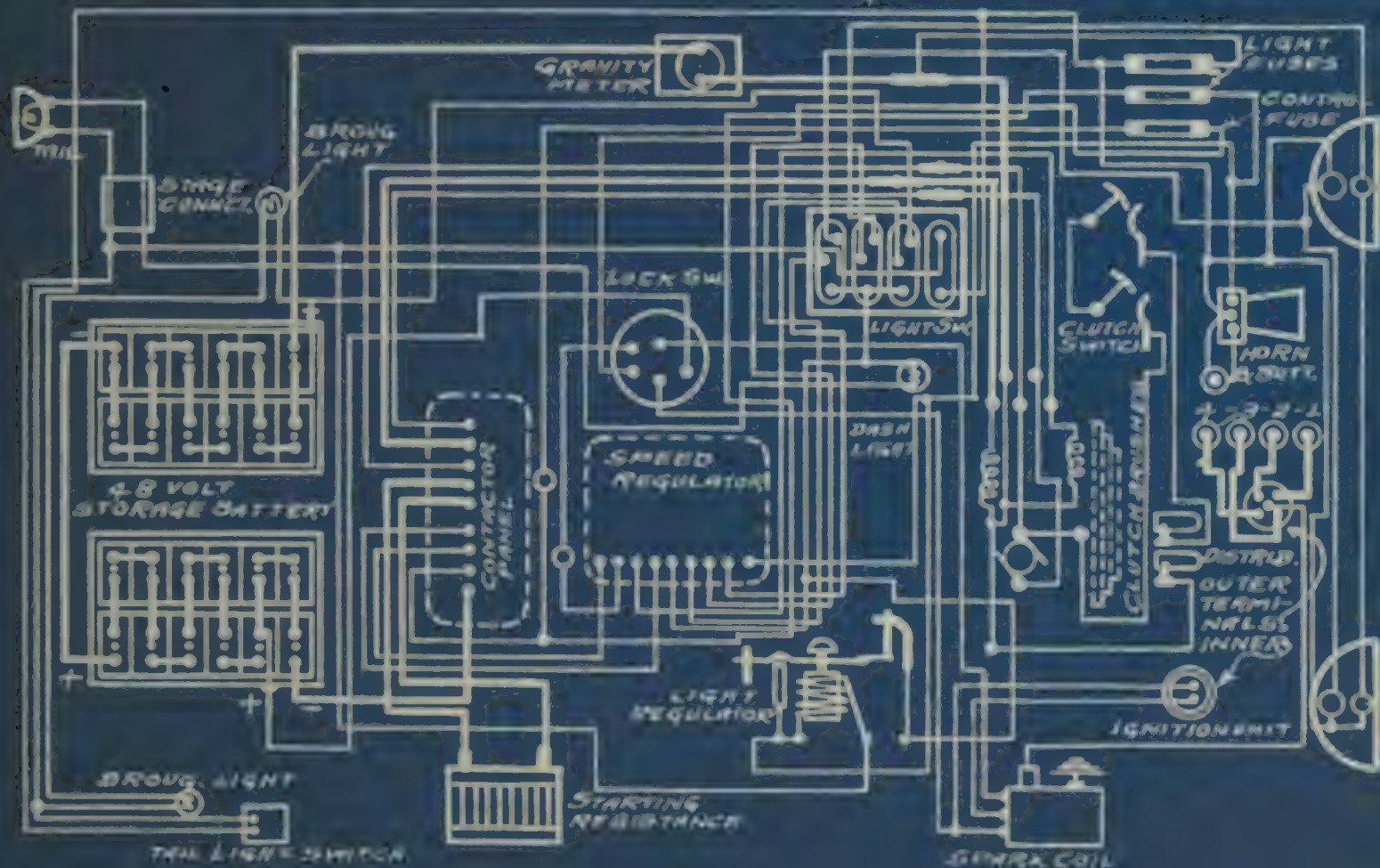
FROM MERS, D-F



# WOODS DUAL-POWER 1918 "1700"

WOODS SYSTEM

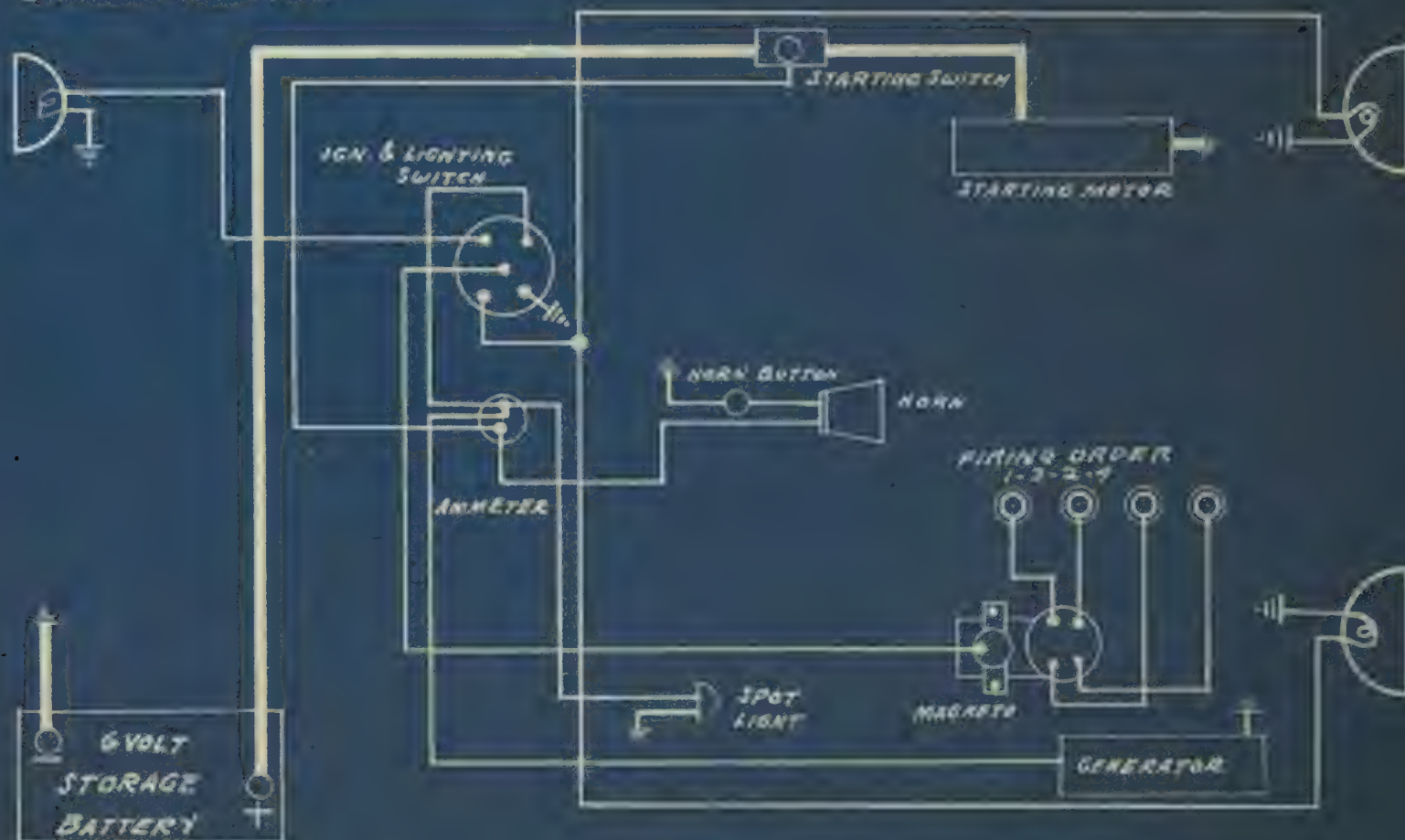
FROM MFRS. B-P. BLDG.



# WOLVERINE TRUCK (1½ TON)

GRAY & DAVIS START & LIGHT  
EISEMAN MAG. IGN.

FROM AIRMAIL C/22



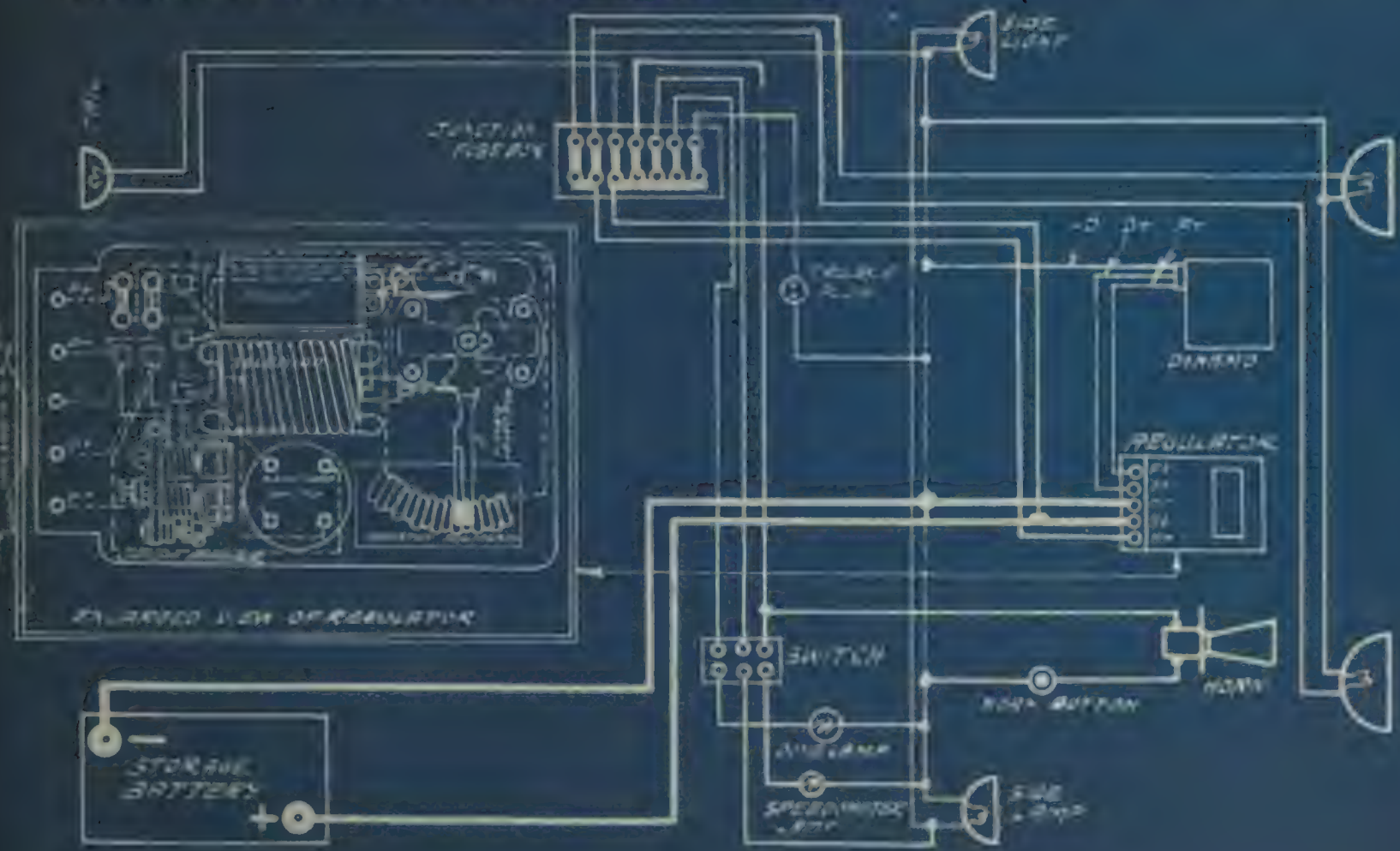


# ADLAKE STANDARD WIRING SYSTEM

SHOWING JUNCTION FUSE BOX IN LIGHTING CIRCUITS

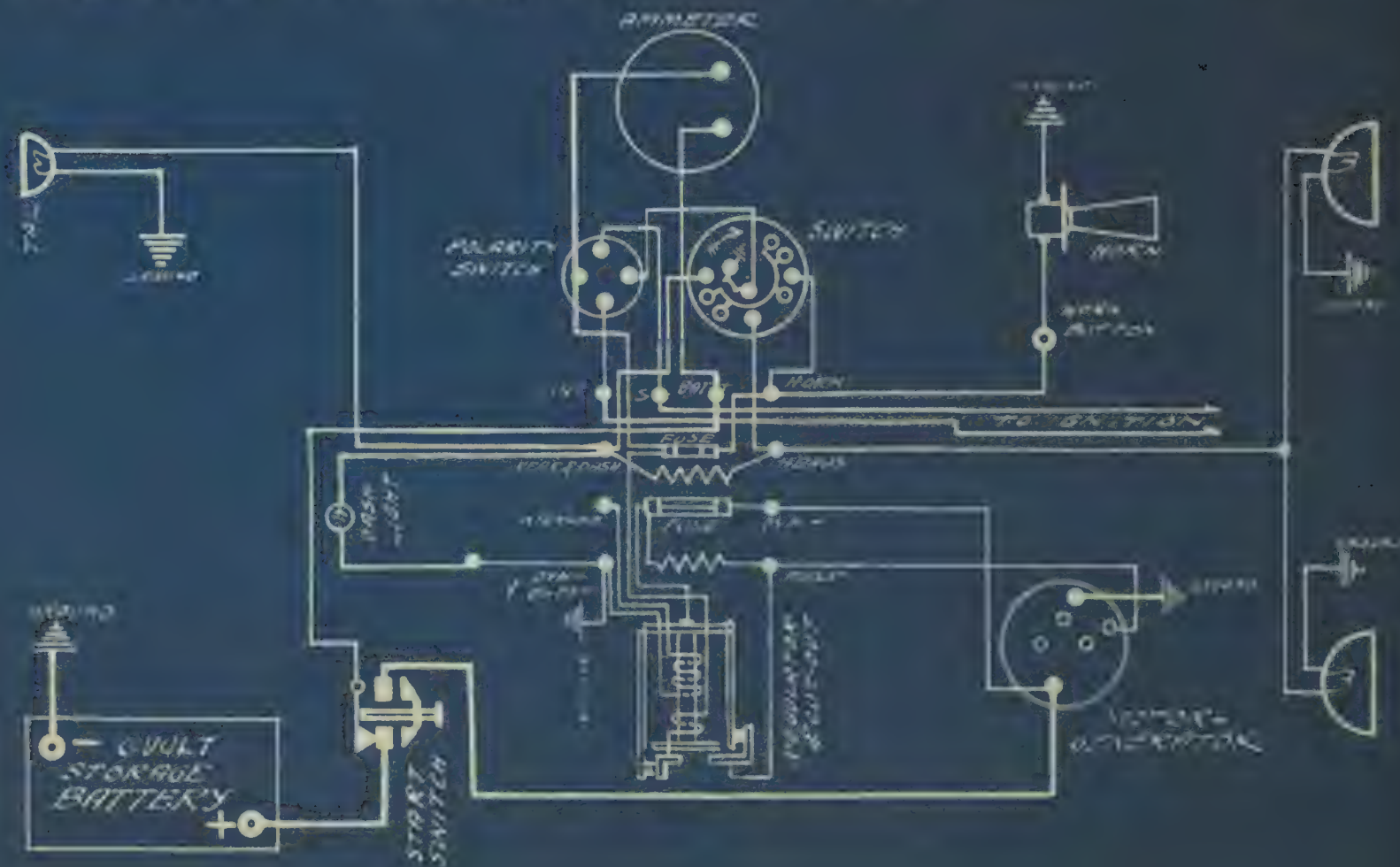
FRONT ADLAKE BULLETIN

AUTOMOTIVE REPAIRING Co.



ALLIS-CHALMERS STANDARD WIRING  
SINGLE UNIT SYSTEM WITH B.S. INSTRUMENT PANEL

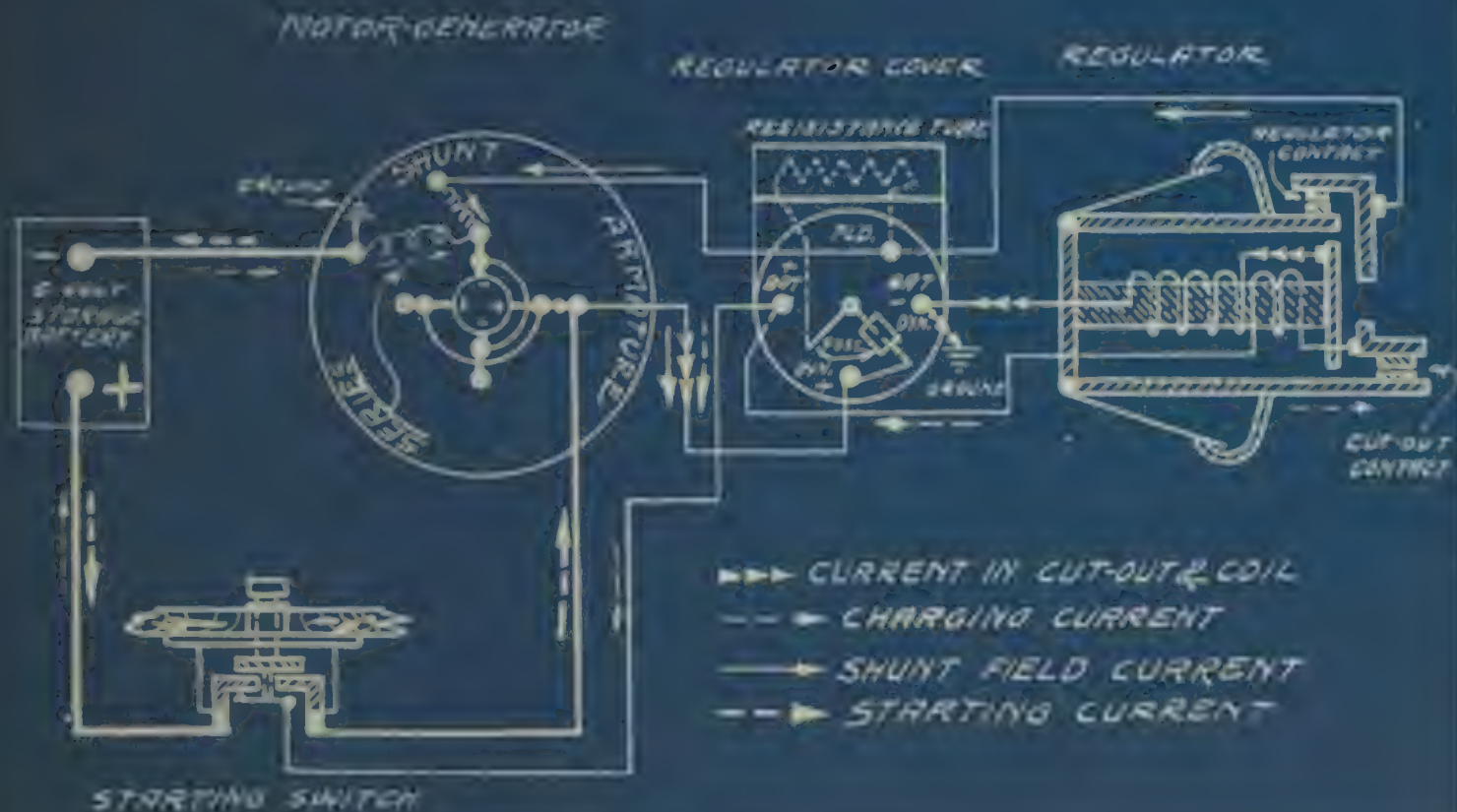
FROM A-CAP 34-12659



# ALLIS-CHALMERS-SINGLE UNIT-INTERNAL WIRING

EARLY MODEL WITH EXTERNAL REGULATOR

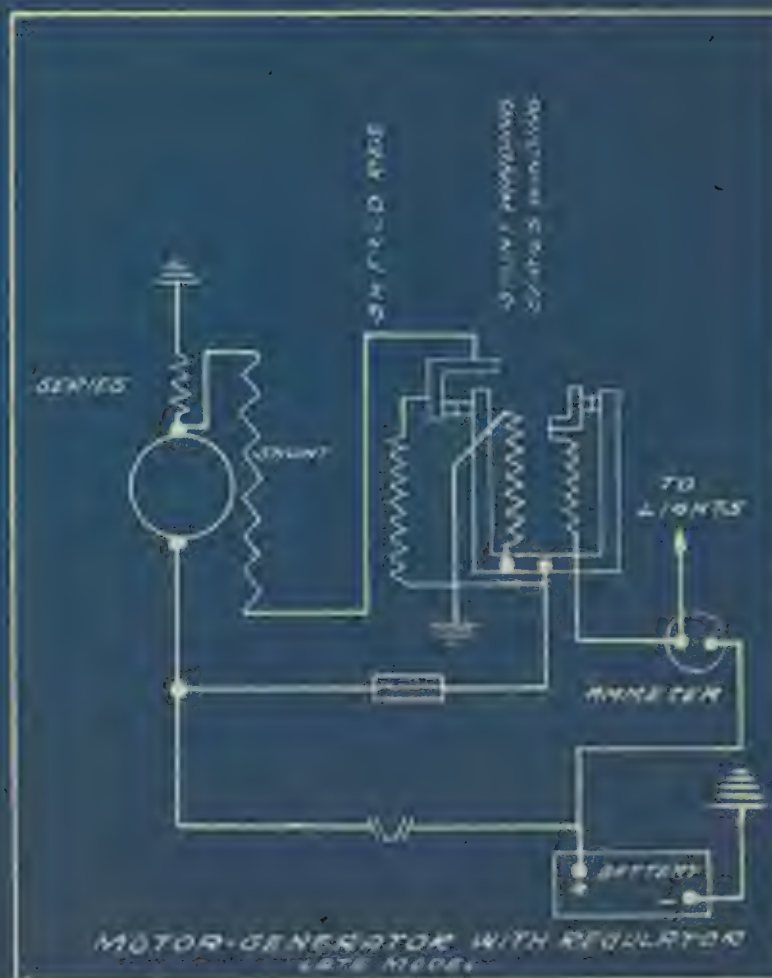
FROM A.C. BA 10674





# ALLIS-CHALMERS INTERNAL CIRCUITS

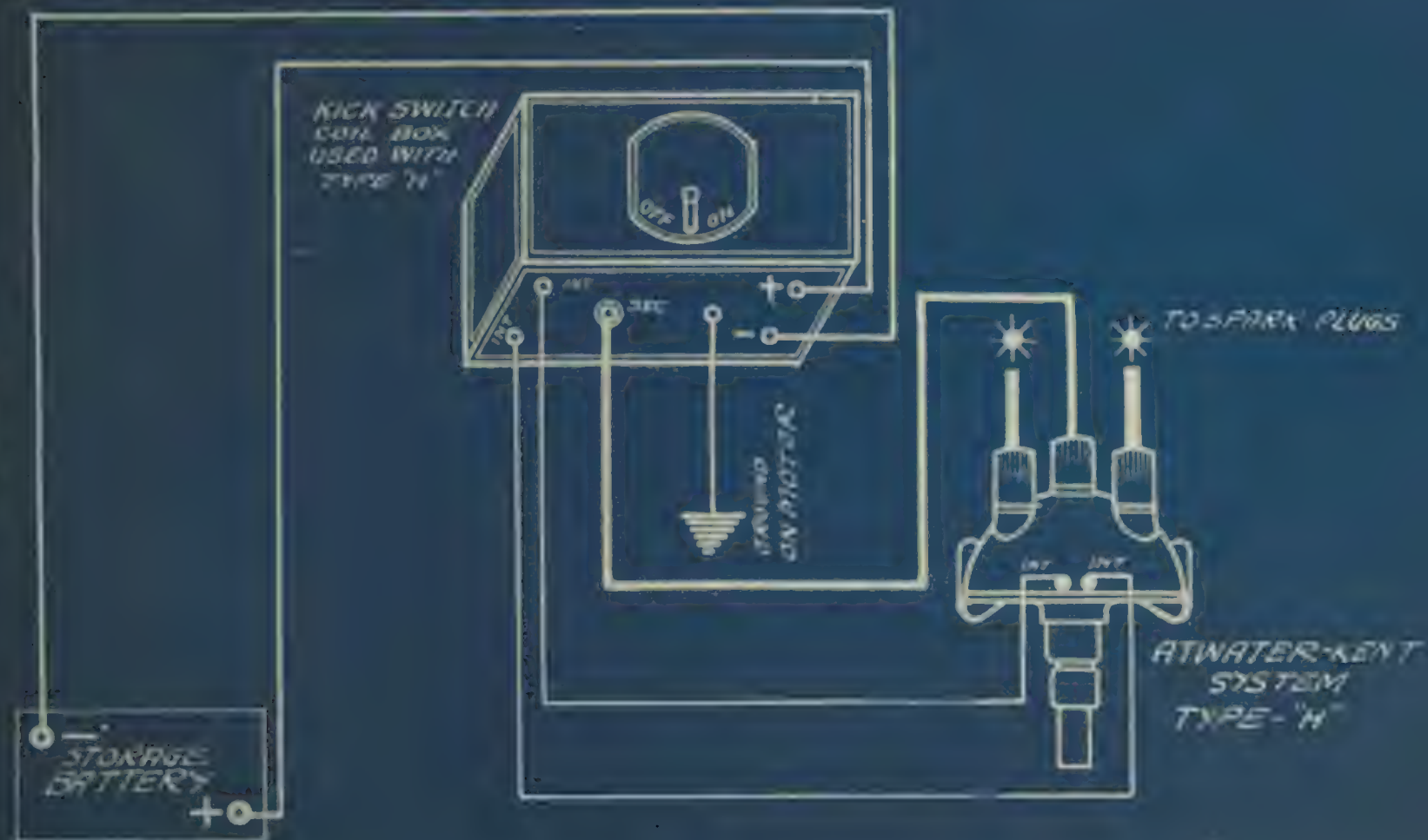
# WAGNER INTERNAL CIRCUITS



# ATWATER-KENT IGNITION SYSTEM

SHOWING KICK SWITCH COIL BOX & TYPE "H" DISTRIBUTOR

FROM KEN. 87



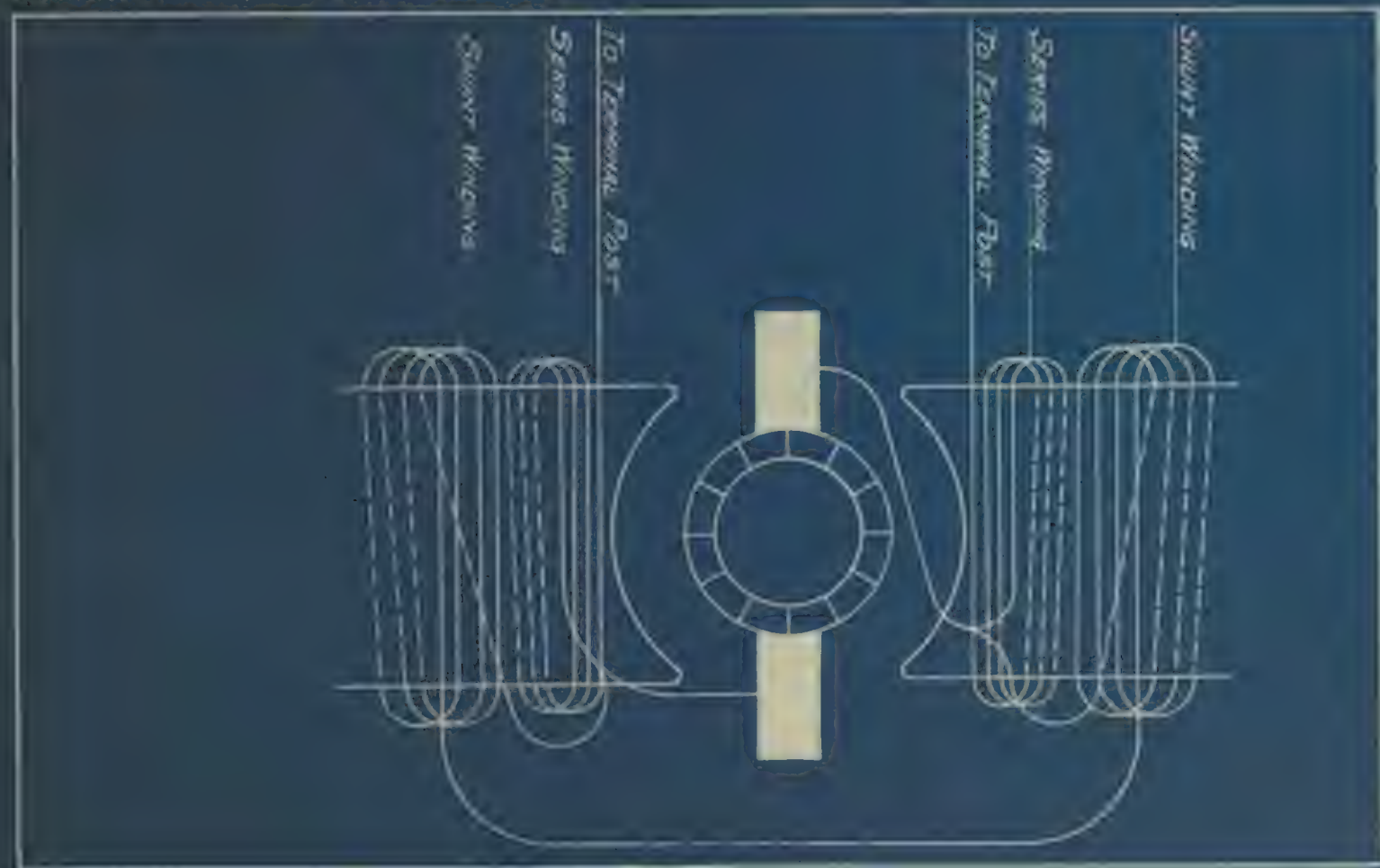
### CONNECTICUT IGNITION-TYPE H & N-D SWITCH



# AUTO LITE GB GENERATOR

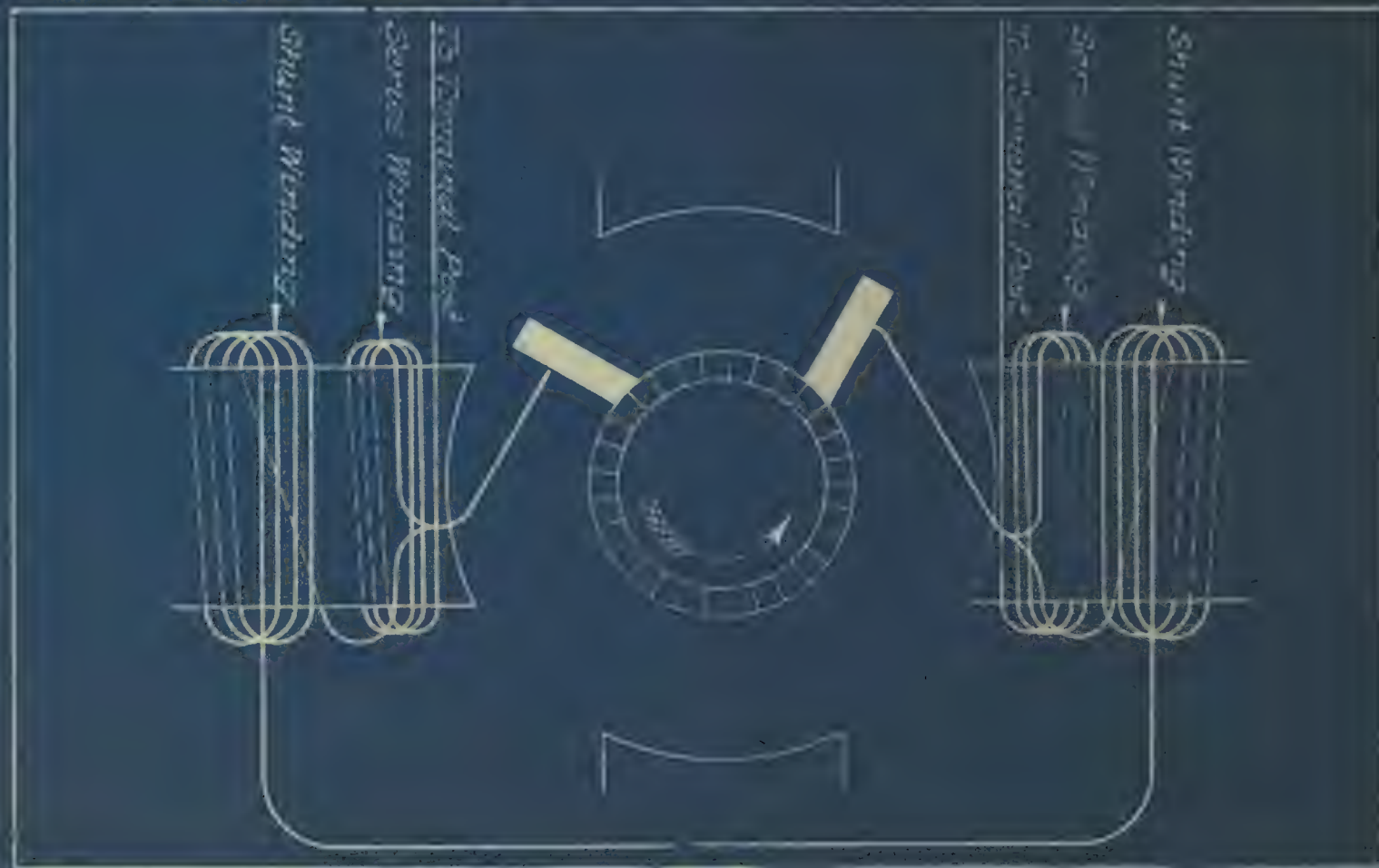
## FIELD WINDING INTERNALS

FROM MFRS DRWG. EA 76



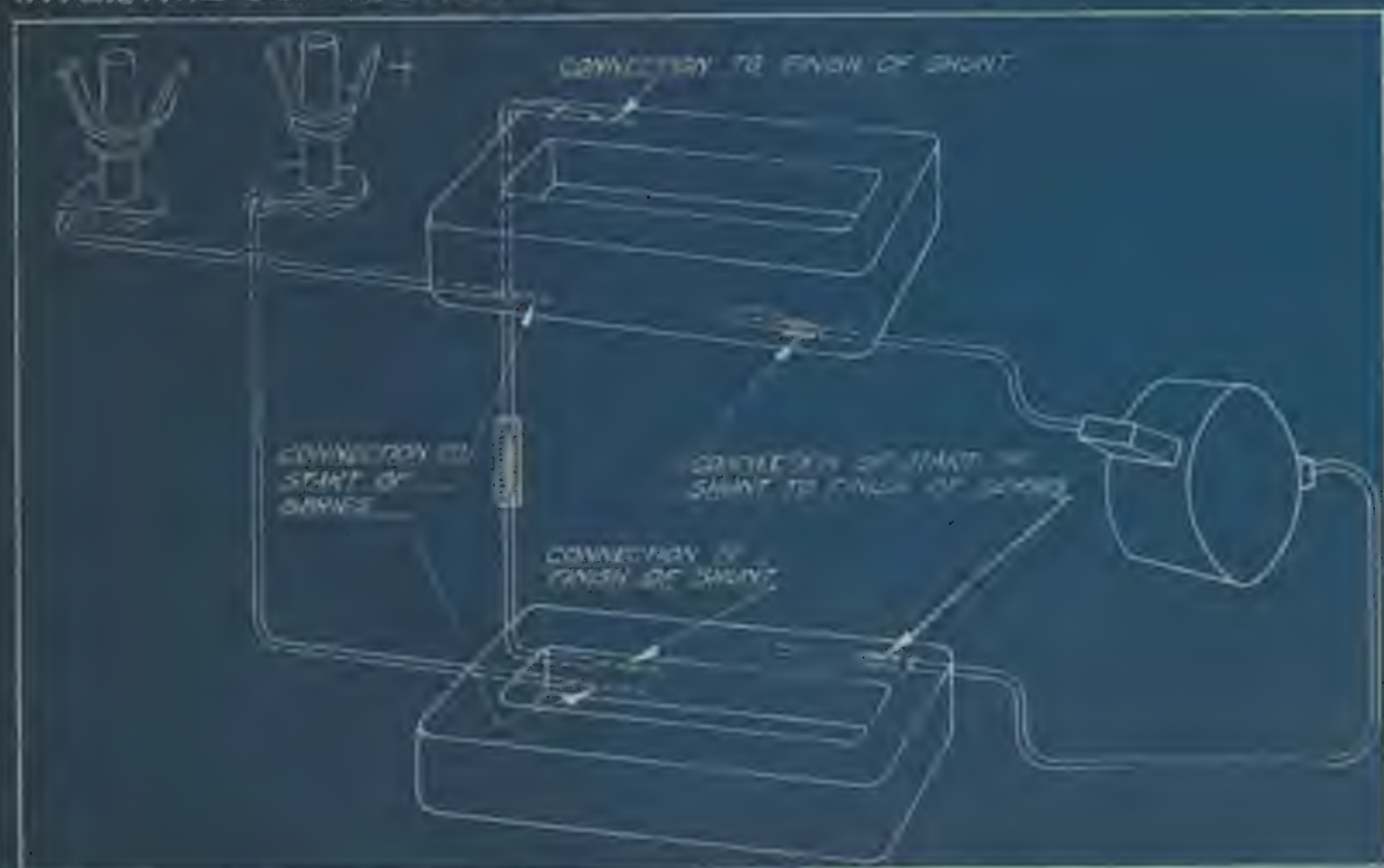
*AUTO LITE G.C. G.D. GENERATORS*  
*FIELD WINDING INTERNALS*

*FROM HRS. DRWG. E177*



# AUTOLITE GG GENERATOR INTERNAL CONNECTIONS

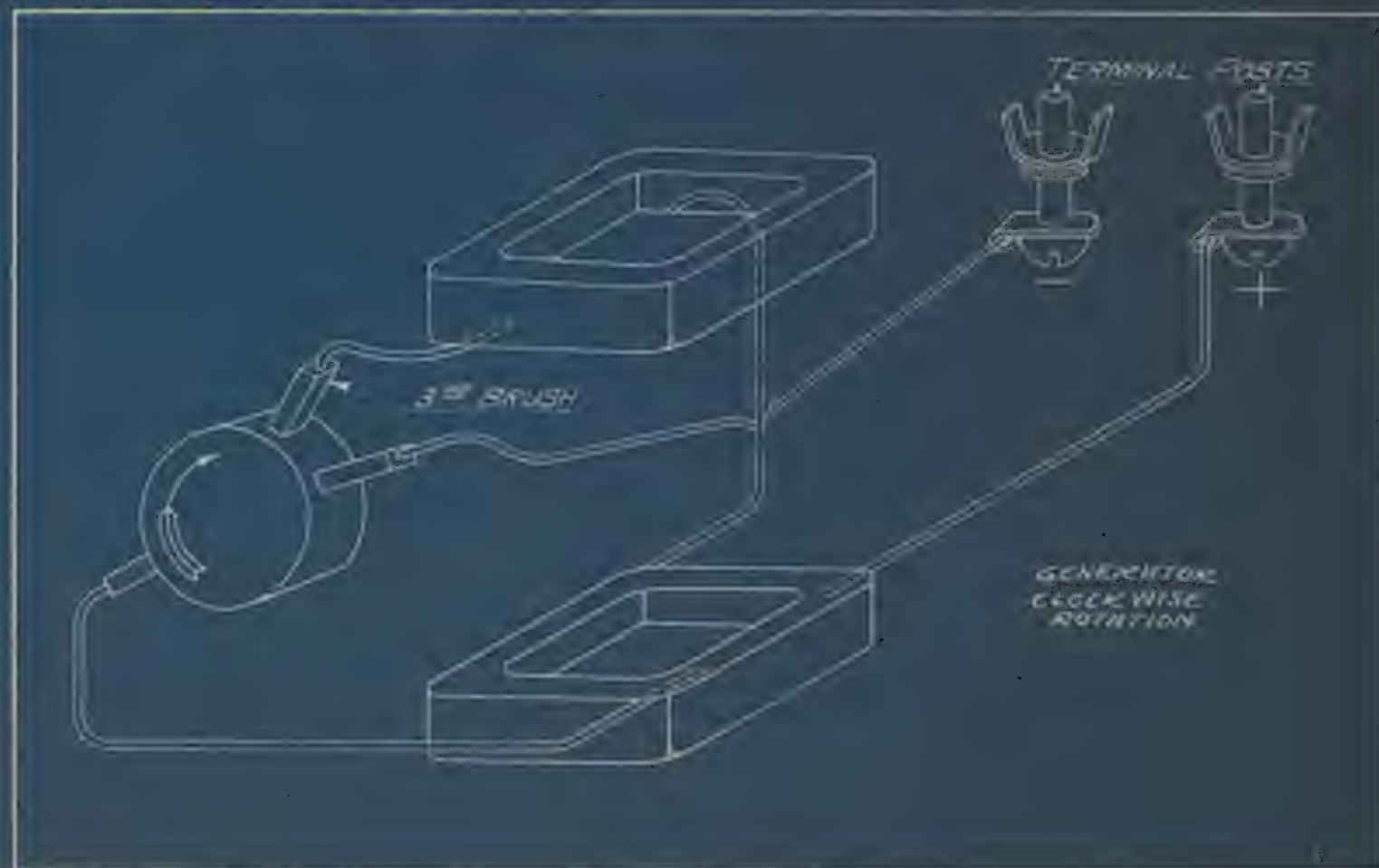
FROM MFRS. DRWG. CX 66





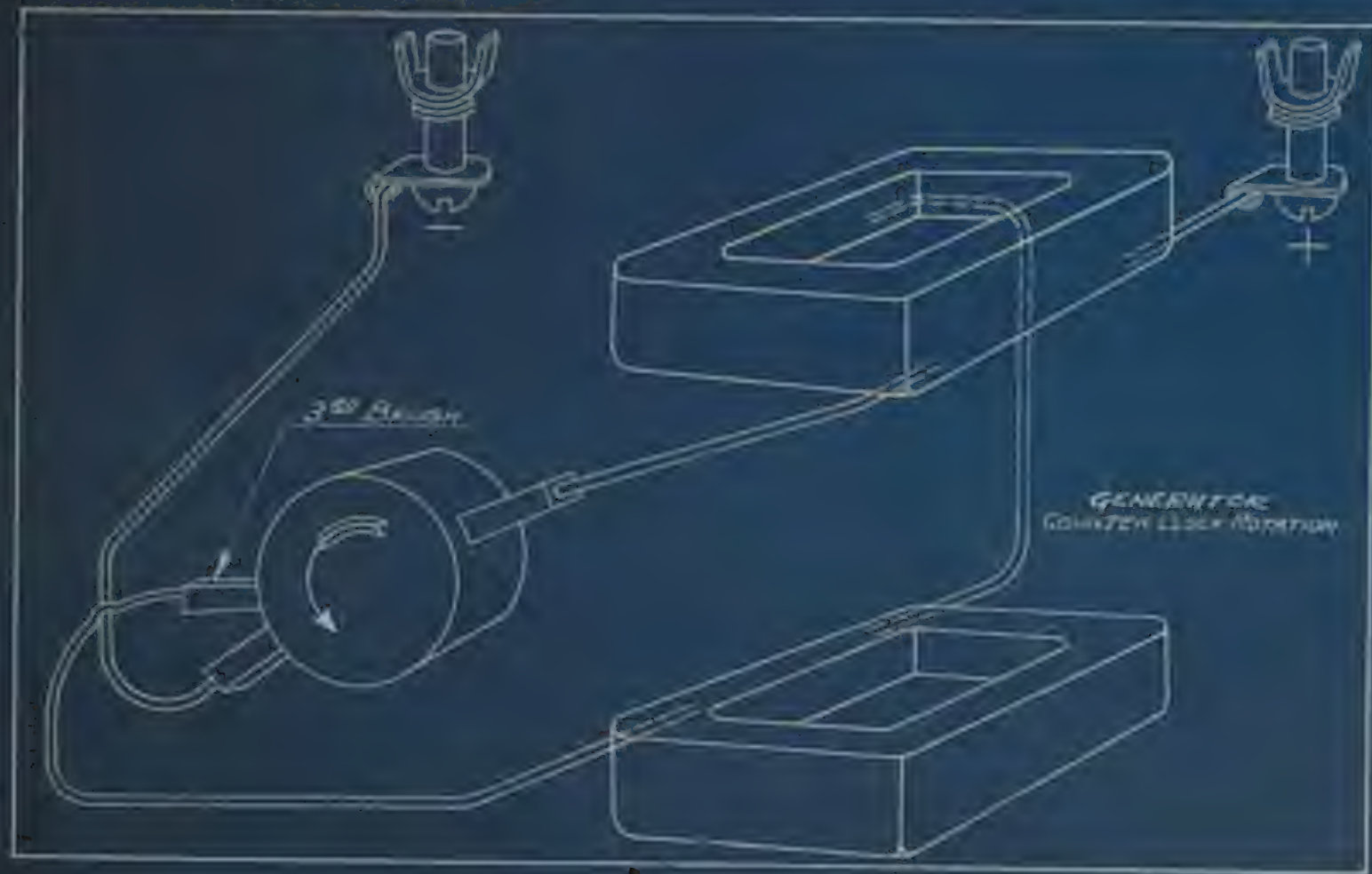
*AUTOLITE GH GENERATOR  
INTERNAL CONNECTIONS*

*FROM MFRS. DRWG. EX. 60*



# AUTO LITE GH GENERATOR INTERNAL CONNECTIONS.

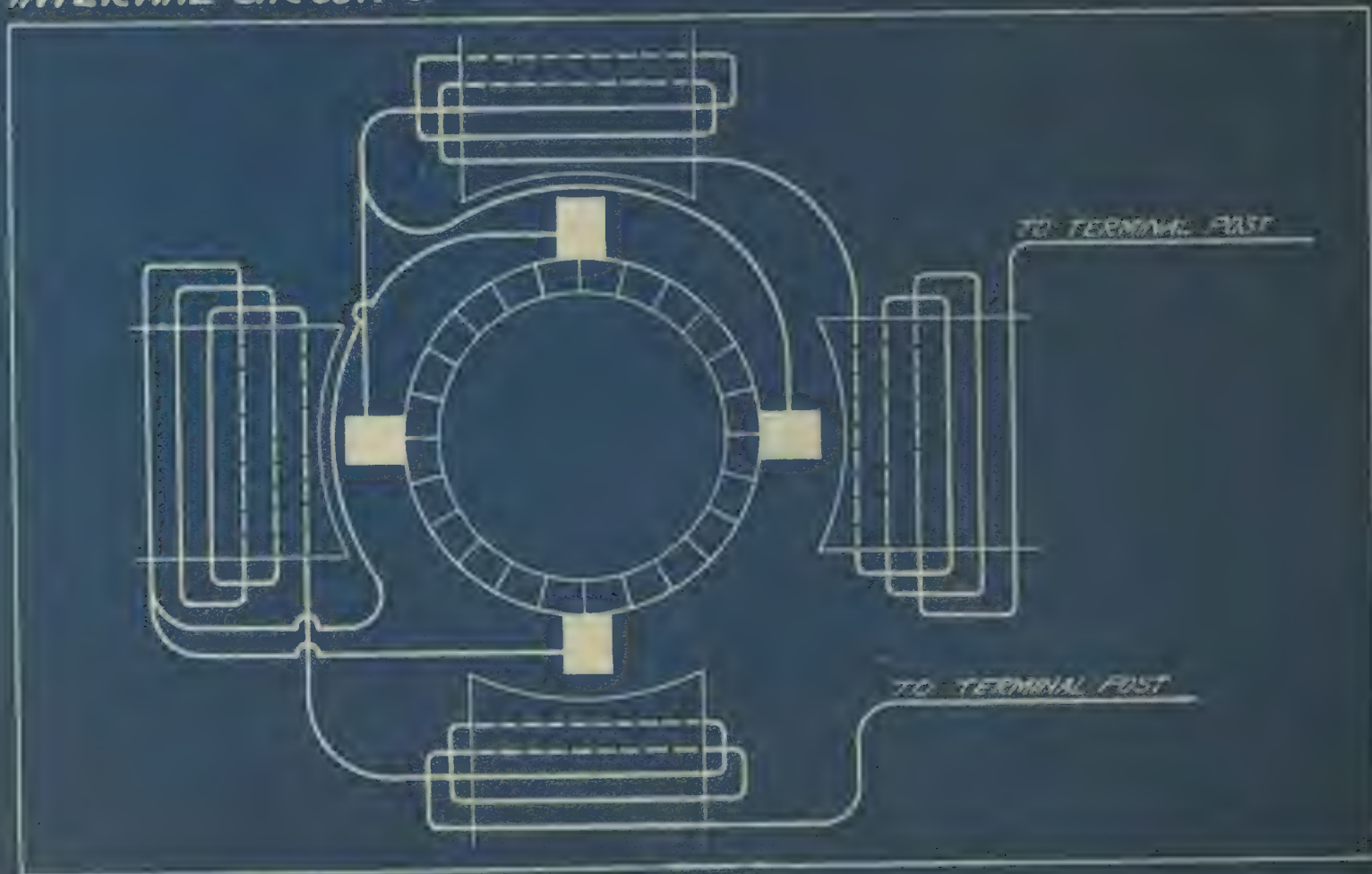
FROM MFRS. DRWG. EX. 61.



AUTOMOTIVE ELECTRICAL CO. CHICAGO, ILL.

*AUTO LITE MD MC MF MOTORS  
INTERNAL CIRCUITS*

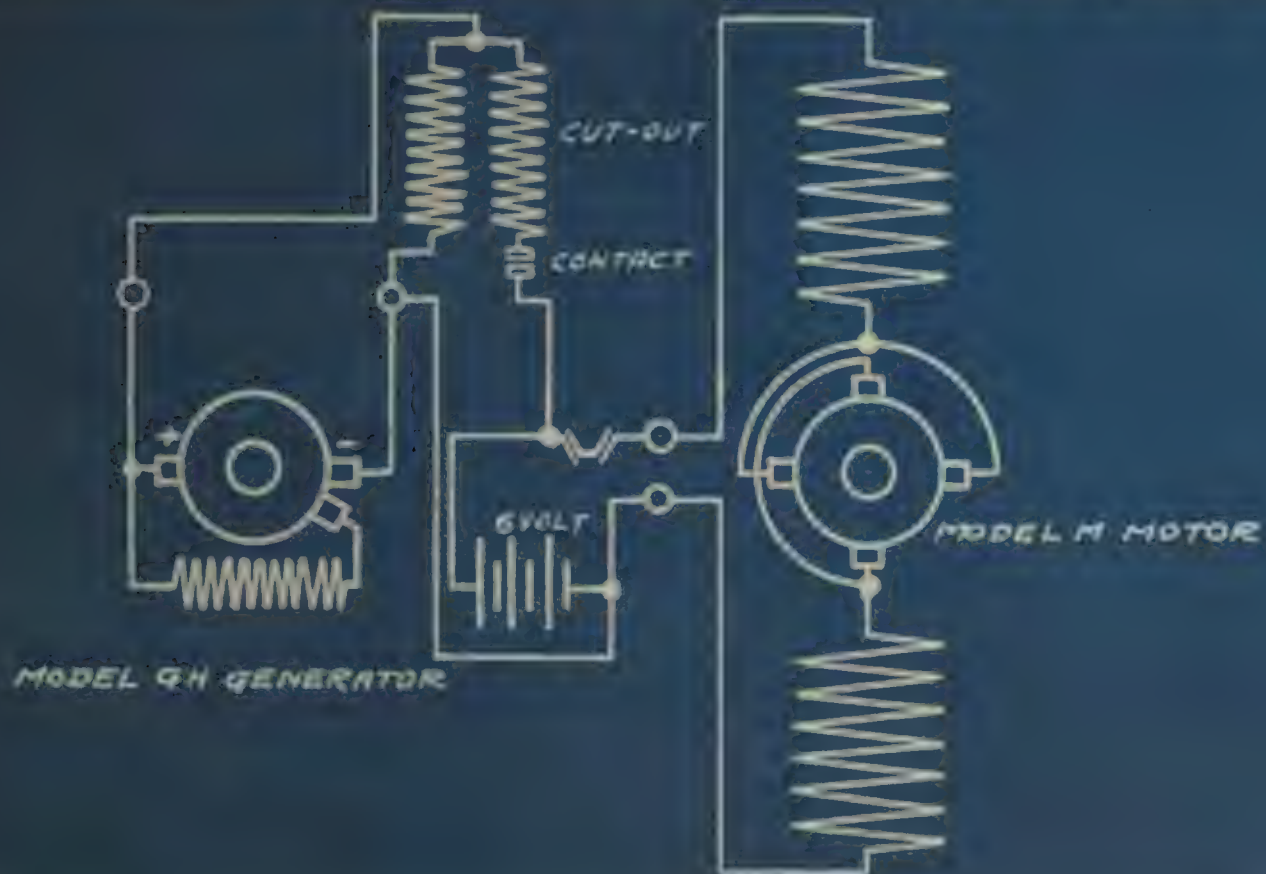
*FROM MFRS. DRWG. EX. 64*





# AUTOLITE INTERNAL CIRCUITS

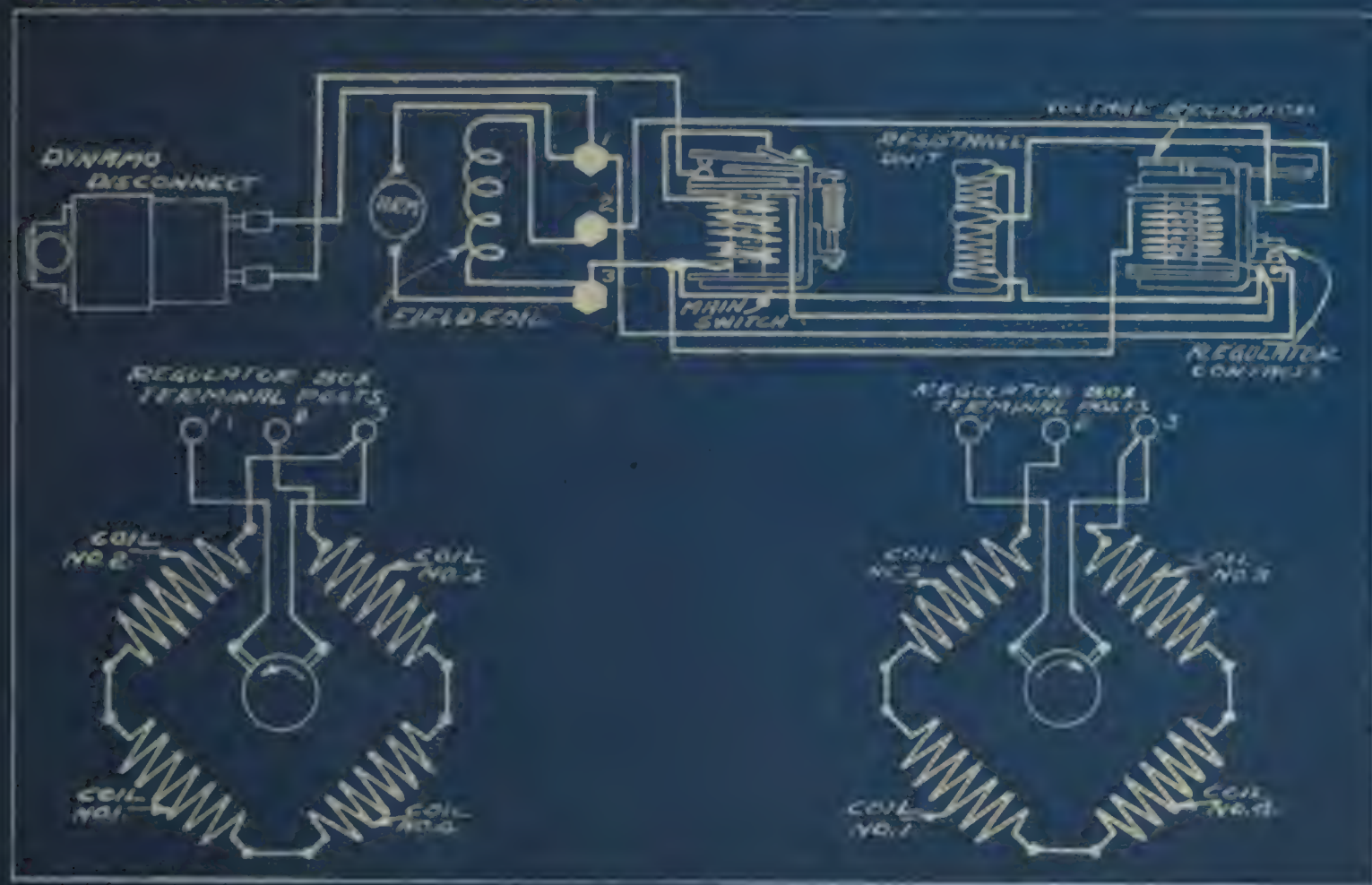
FROMMERS 3/P. EX64





# BIJUR GENERATOR WITH REGULATOR INTERNAL CIRCUITS STANDARD CONNECTIONS

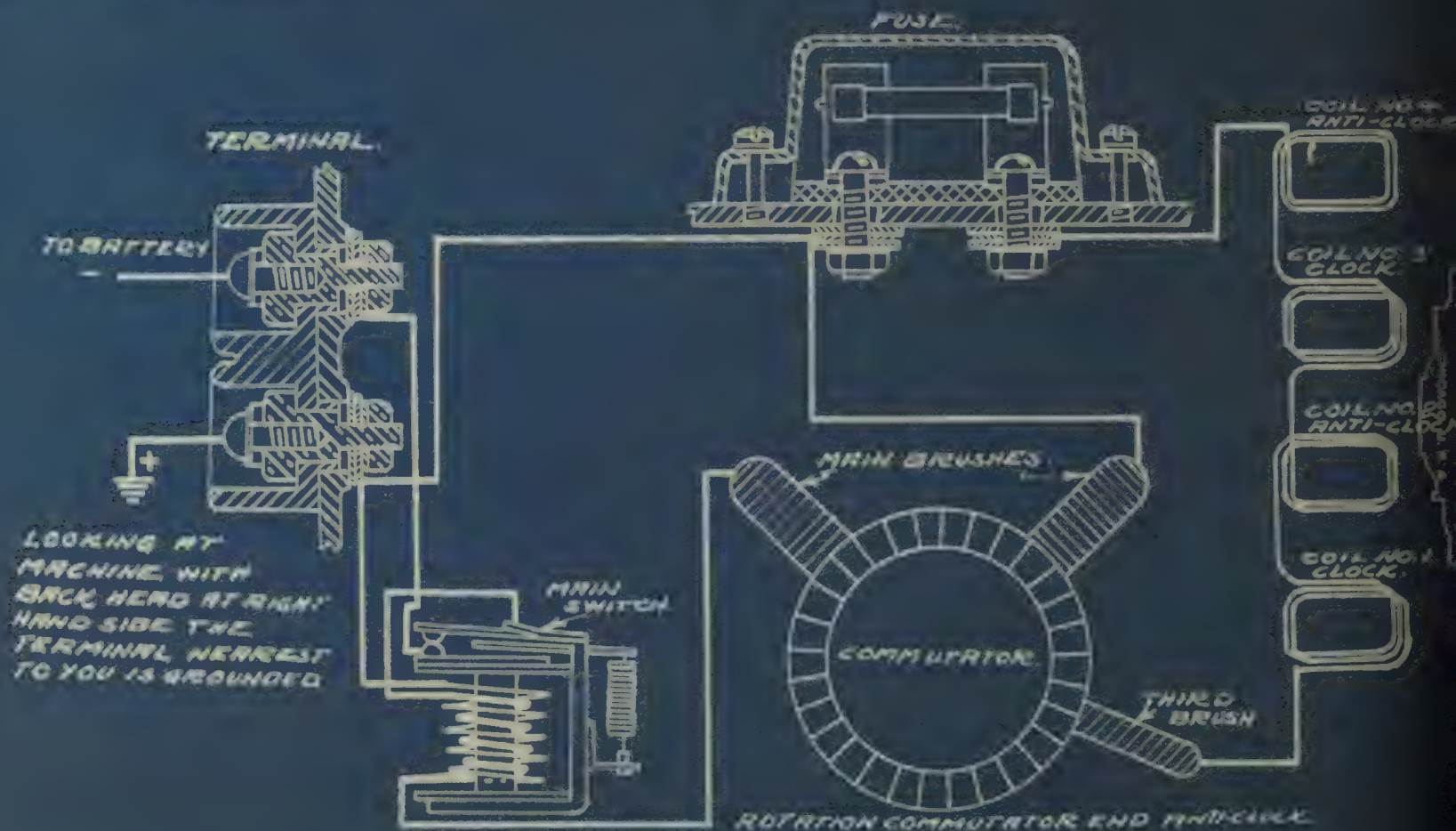
BIJUR 4050-53





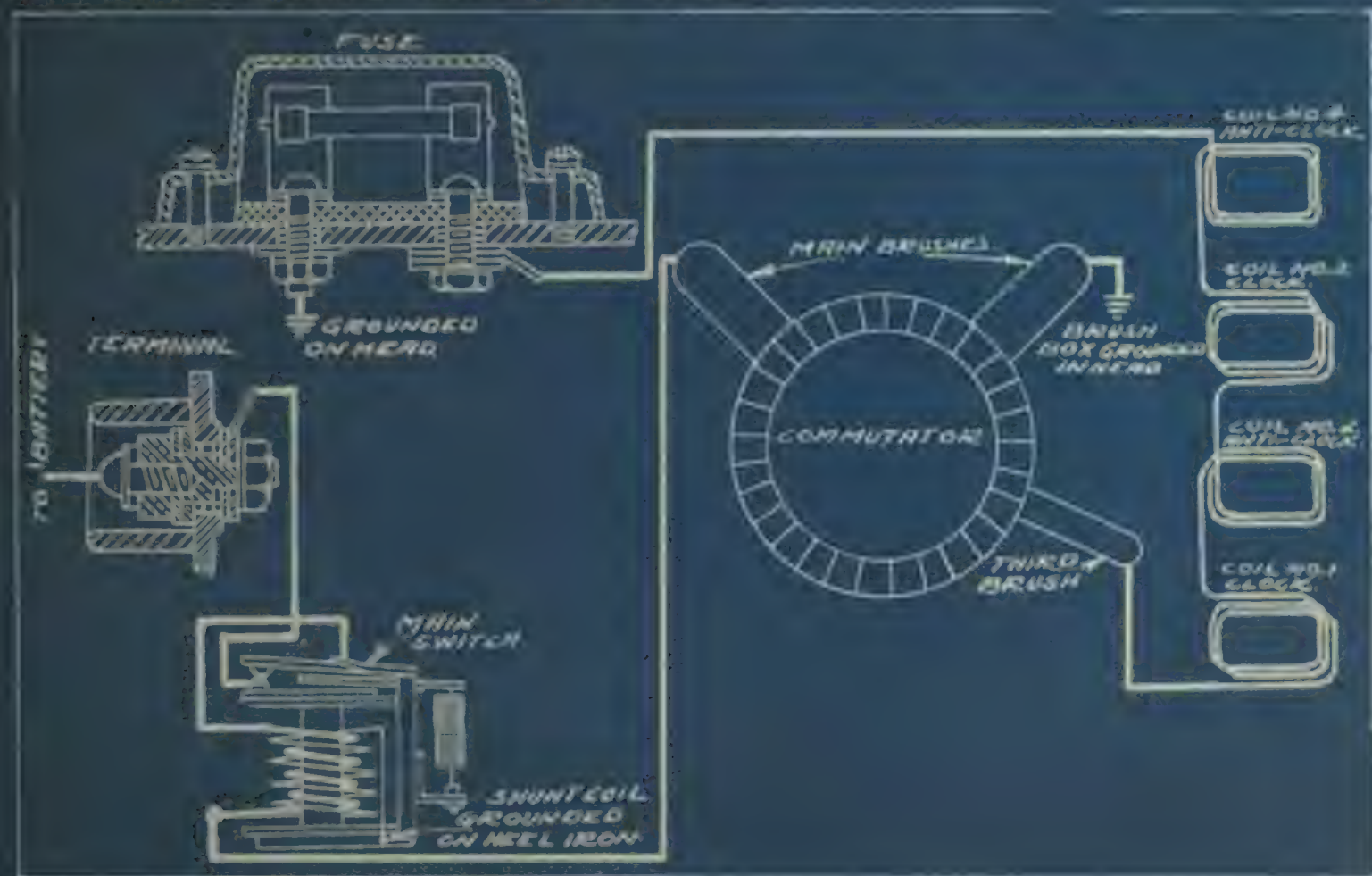
# BIJUR TWO TERMINAL TYPE L 61 GENERATOR INTERNAL CIRCUITS.

BIJUR B/P SER. 80



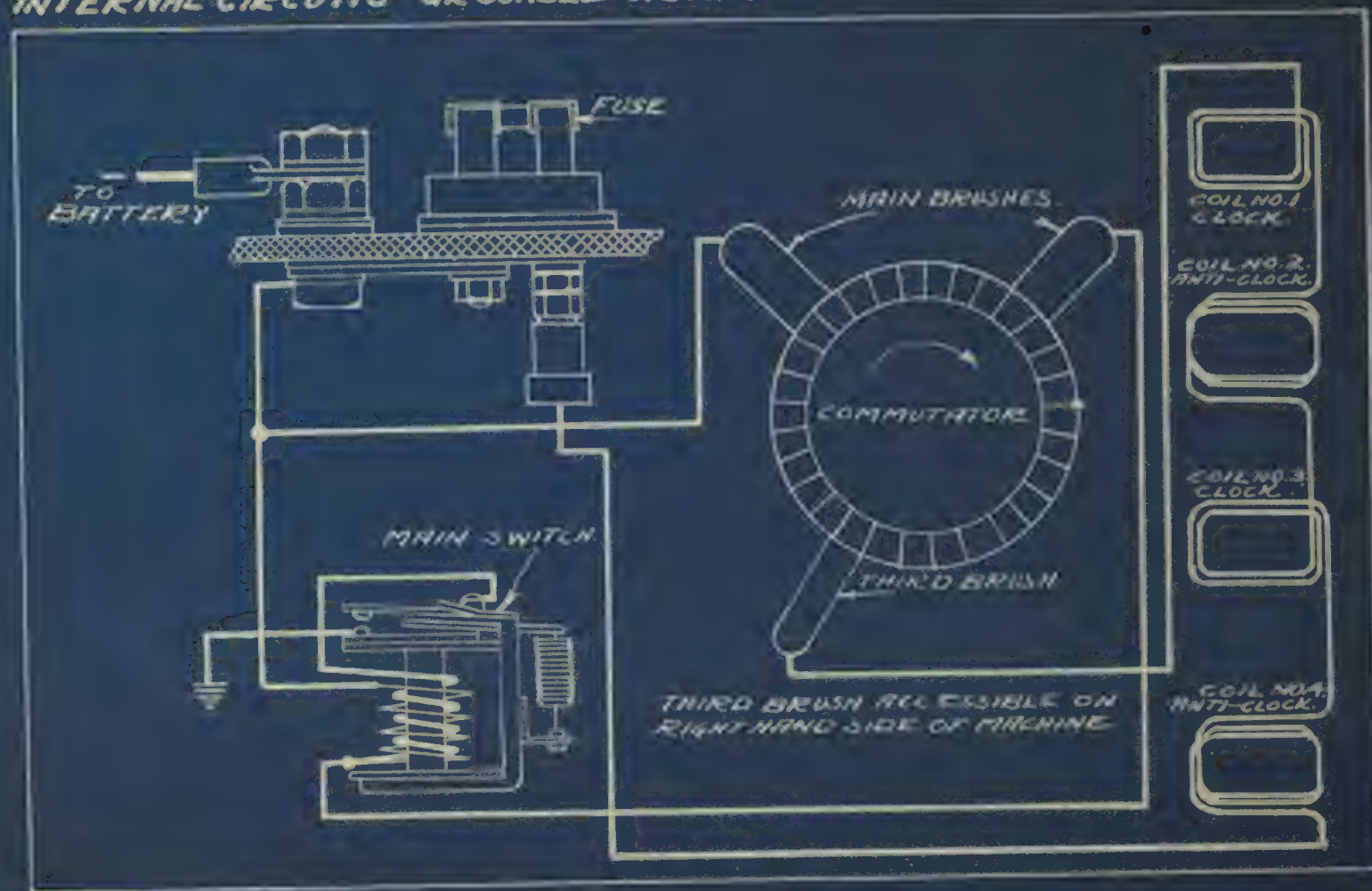
# *BIJUR SINGLE TERMINAL TYPE L61 GENERATOR* *INTERNAL CIRCUITS GROUNDED SYSTEM.*

*BIJUR APP SER. 114.*



# BIJUR FRONTHEAD TYPE L61 GENERATOR INTERNAL CIRCUITS GROUNDED SYSTEM

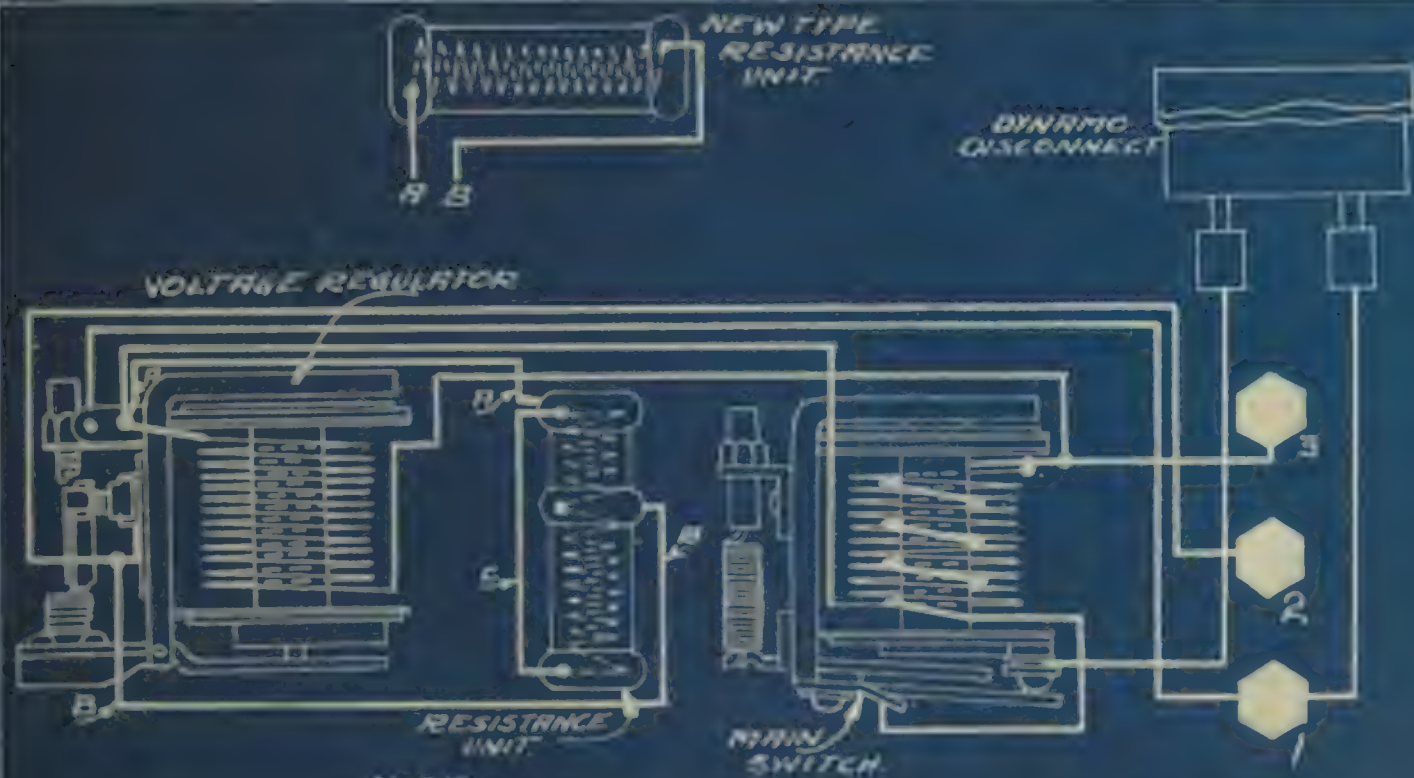
BIJUR 8/P SER. 165





# 

BUJUR 8/P SER 183

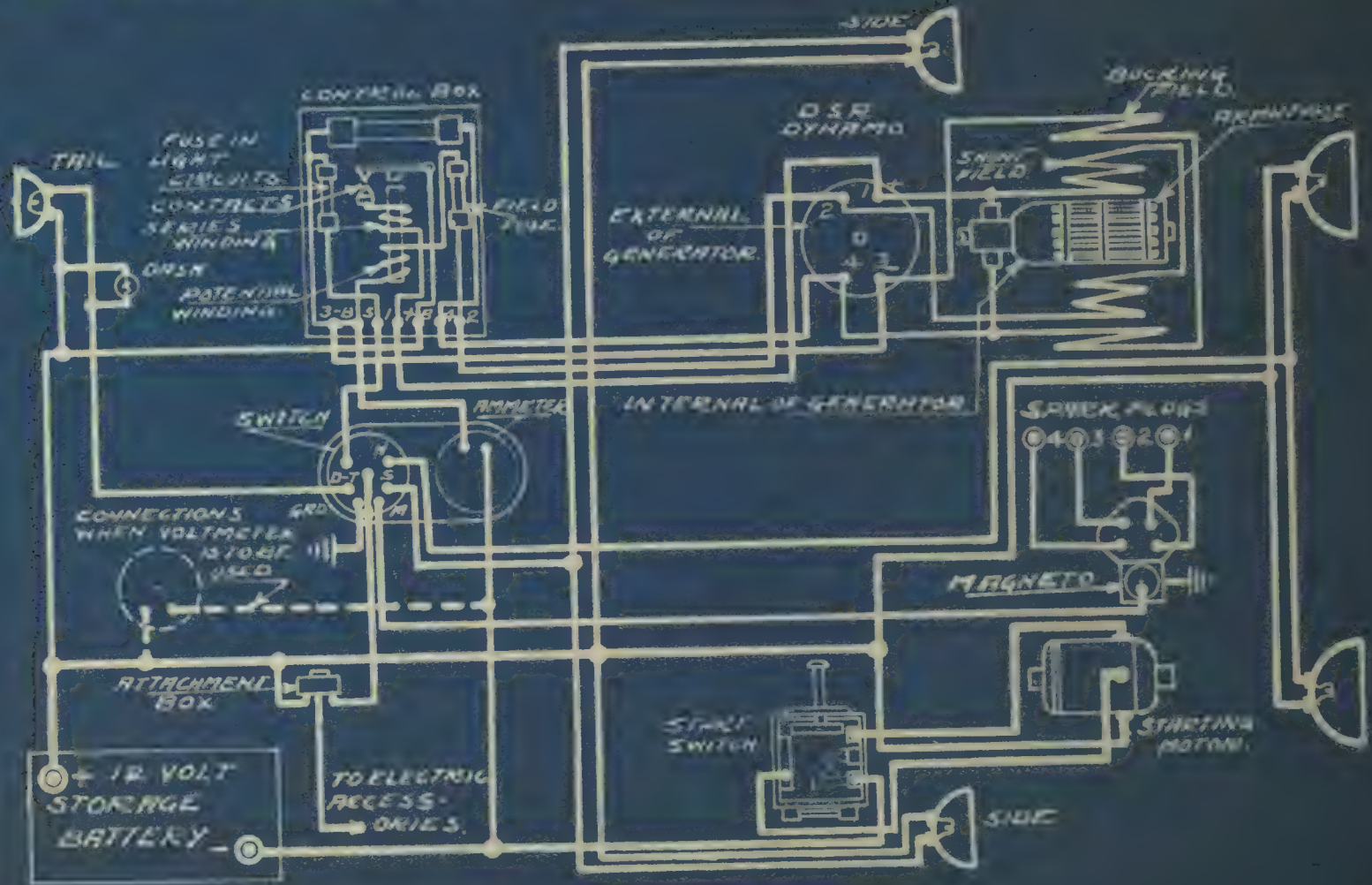


### 

THE OLD TYPE RESISTANCE UNIT CAN BE USED BY CONNECTING JUMPER (C) ACROSS ITS SHOWN ON DIAGRAM.

# BOSCH STANDARD LIGHTING SYSTEM

FROM BOSCH A/P FD144B



# BOSCH-RUSHMORE INTERNAL CIRCUITS

FROM BOSCH-RUSHMORE PAPER

AUTOMOTIVE ELECTRICAL CO.



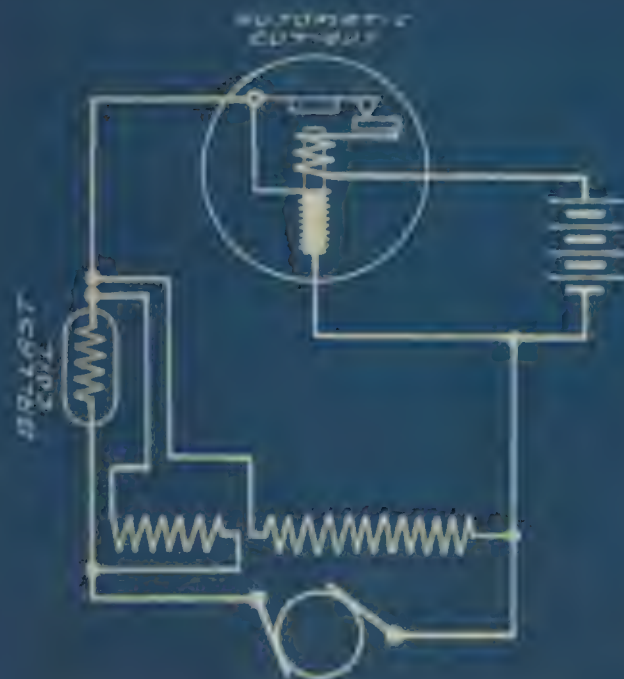
RESISTANCE WIRE PART  
ENDING POSITION OF  
PEDAL UNDER DOWN

ELECTRICAL CIRCUIT DURING FIRST PART  
OF DOWNWARD MOVEMENT OF SWITCH PEDAL



RESISTANCE WIRE AND  
ENDING POSITION OF  
PEDAL UNDER DOWN

ELECTRICAL CIRCUIT WHEN  
SWITCH PEDAL HAS COMPLETED ITS DOWN-  
WARD MOVEMENT

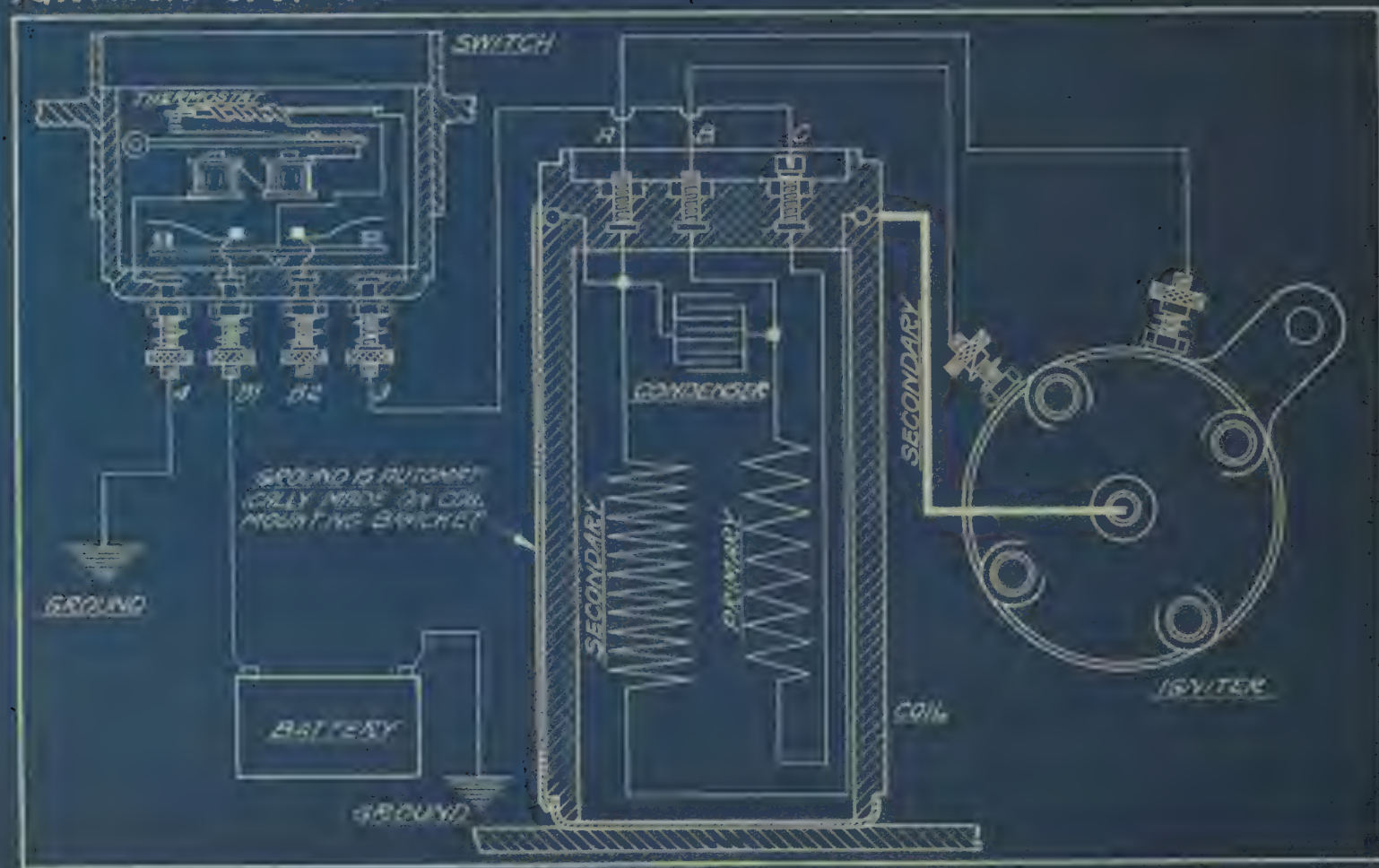


BOSCH-RUSHMORE GENERATING  
-BALLAST CONTROL-



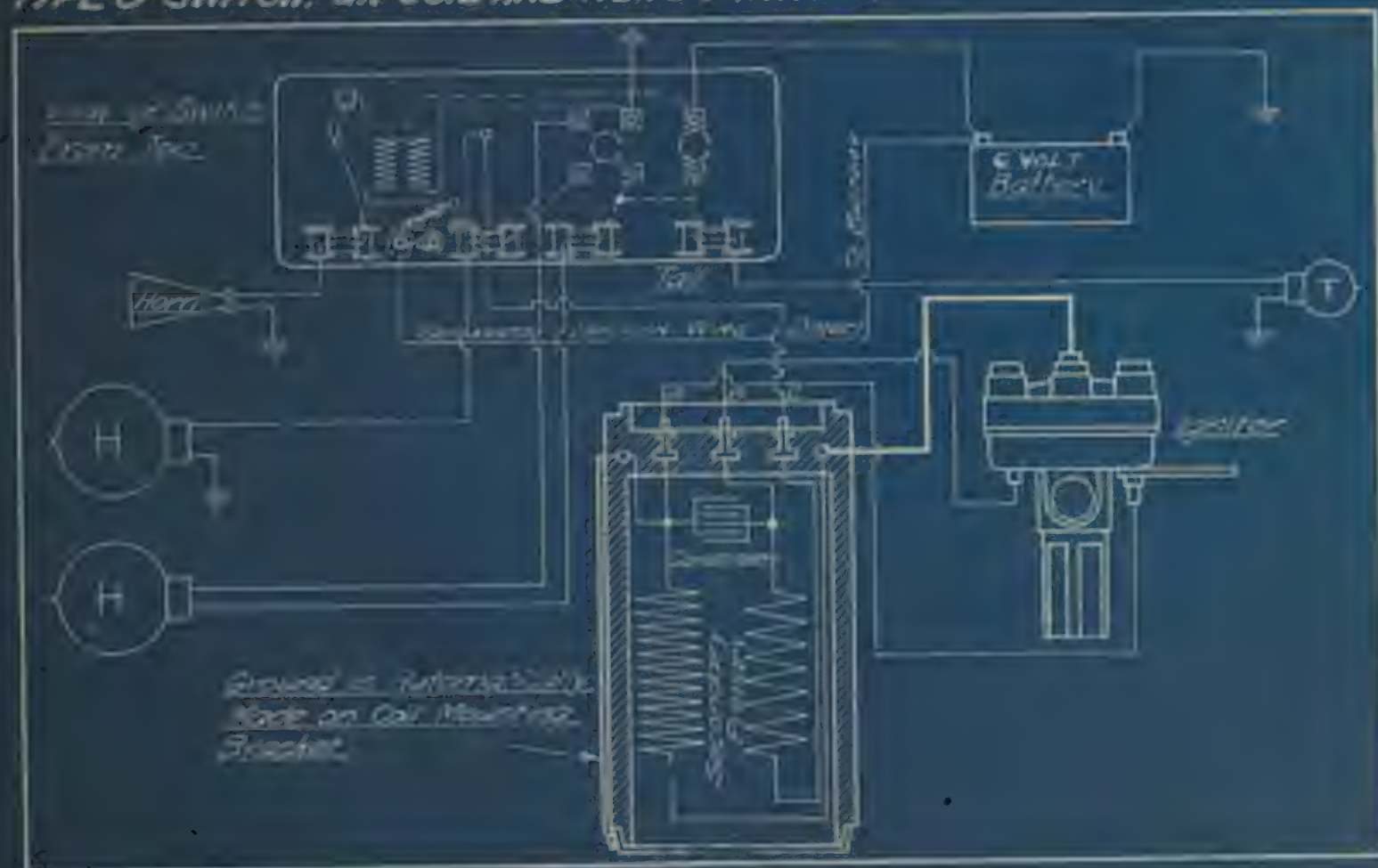
# CONNECTICUT AUTOMATIC IGNITION SYSTEM.

FROM HERS. DRAWG. 21.47



# CONNECTICUT IGNITION. INTERNAL CIRCUITS TYPE O SWITCH, GR COIL AND NO. 16 IGNITER.

FROM MFRS. DRAWING EX. 163.

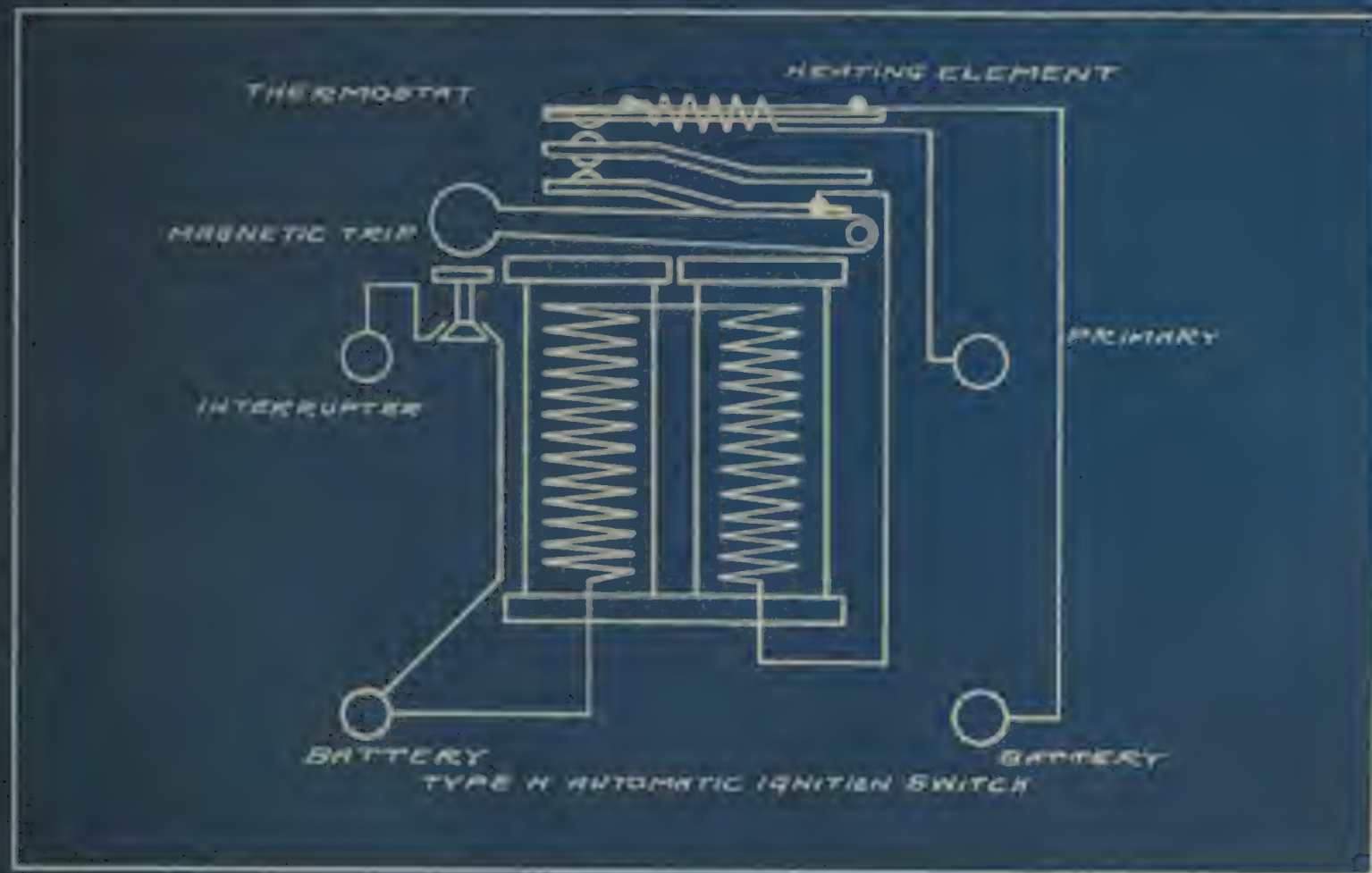






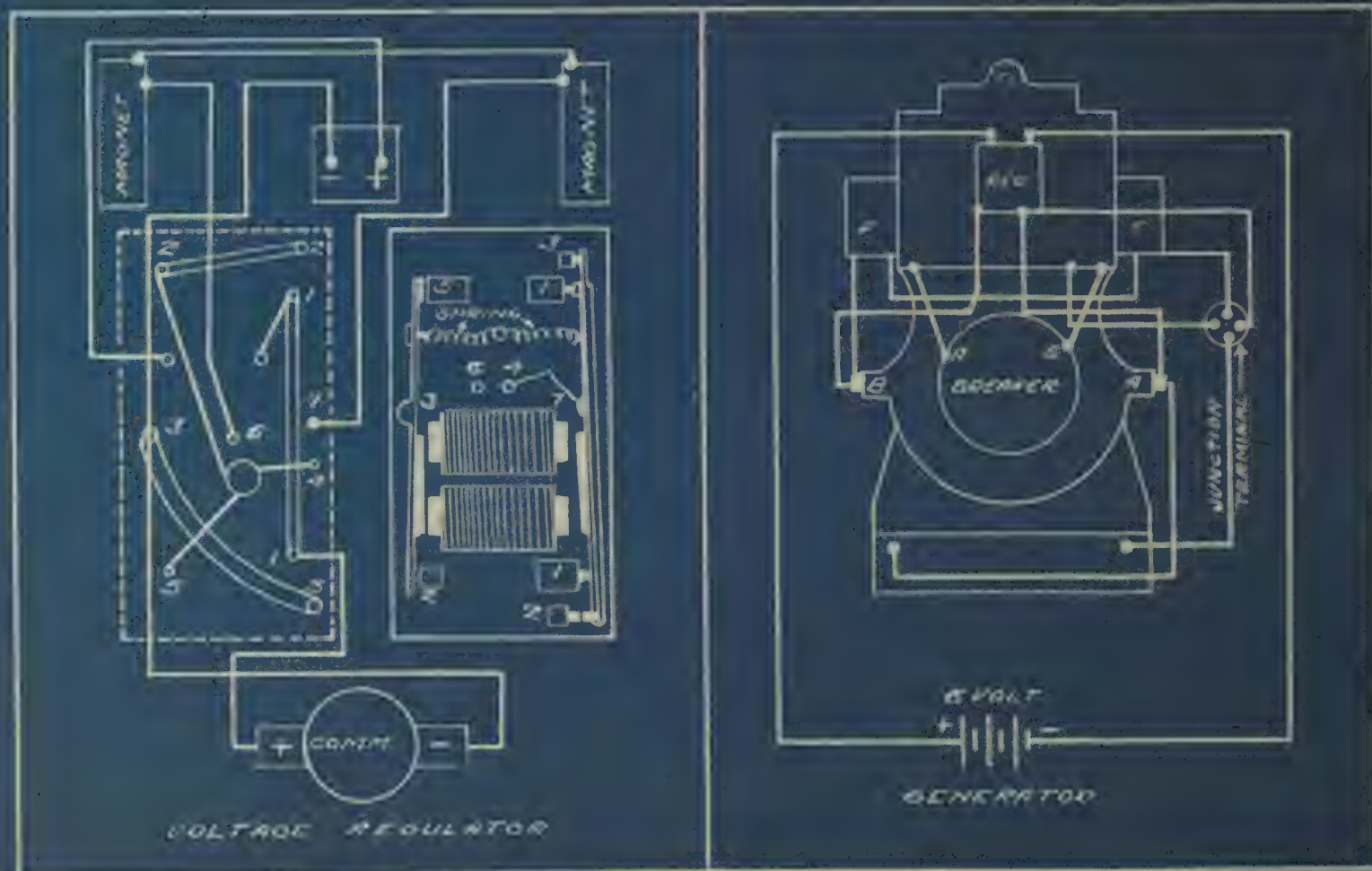
# CONNECTICUT INTERNAL CIRCUITS

FROM MERB 3/P 163



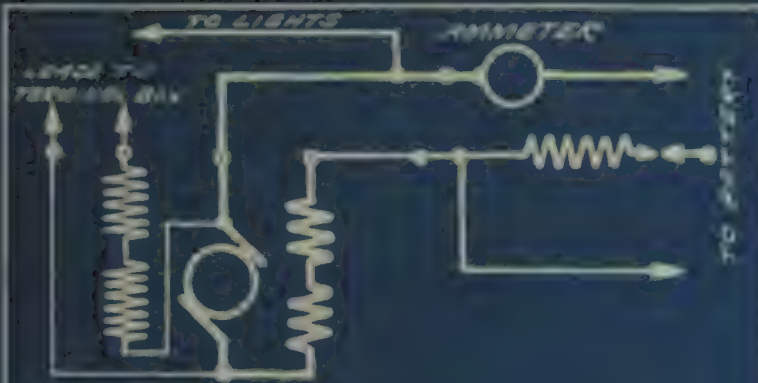
# DEACO INTERNAL CIRCUITS

FROM SKETCH BY G.D.H.



# DELCO INTERNAL CIRCUITS

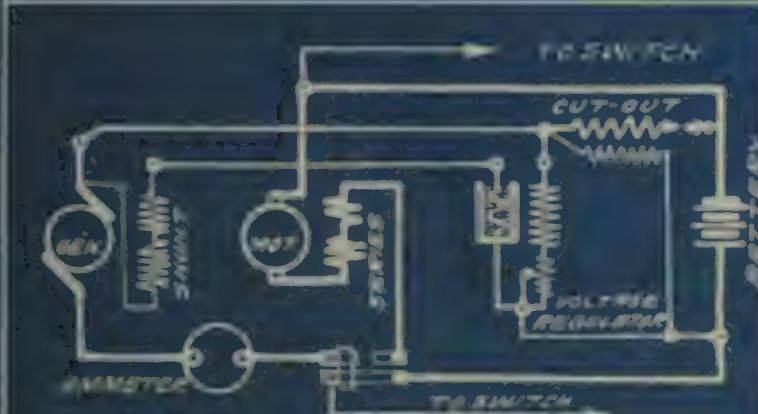
FROM DELCO MANUAL



MOTOR-GENERATOR NO. 1



MOTOR-GENERATOR 2-B-12-15



MOTOR-GENERATOR NO. 2



MOTOR-GENERATOR NO. 2B



# DELCO INTERNAL CIRCUITS

FROM DELCO MANUAL

TO BE CONNECTED BY A WIRE  
WASHER OR FUSED CABLE



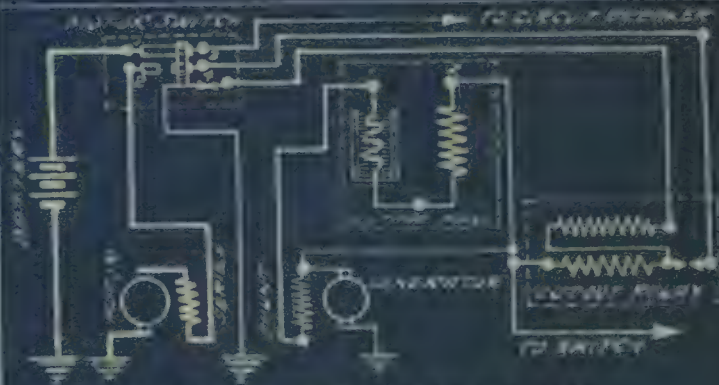
MOTOR-GENERATOR No. 24



MOTOR-GENERATOR No. 26-40



MOTOR-GENERATOR No. 30-33-41-42



MOTOR-GENERATOR No. 28-28-B-32-39-39B

# DELCO INTERNAL CIRCUITS

FROM DELCO MANUAL



MOTOR-GENERATOR 27, 27B, 37, 37B



MOTOR-GENERATOR 35



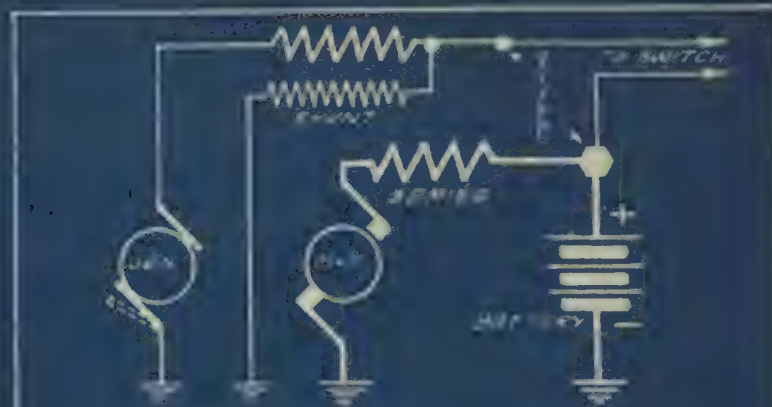
MOTOR-GENERATOR 43



MOTOR-GENERATOR  
44-45-49-50-51-52-55-57-58-59-64-66

# DELCO INTERNAL CIRCUITS

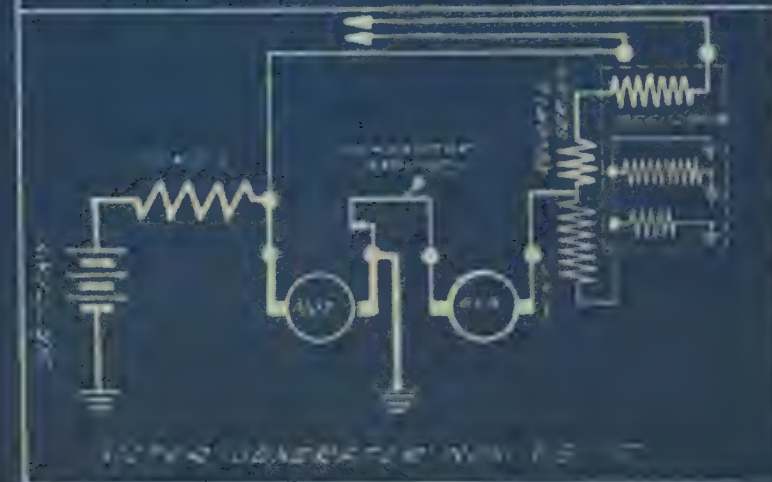
FROM DELCO MANUAL



MOTOR-DIVERTER NO. 53-55-56



MOTOR-DIVERTER NO. 61-62



MOTOR-DIVERTER NO. 73-75



MOTOR-DIVERTER NO. 81-82



# DELCO INTERNAL CIRCUITS

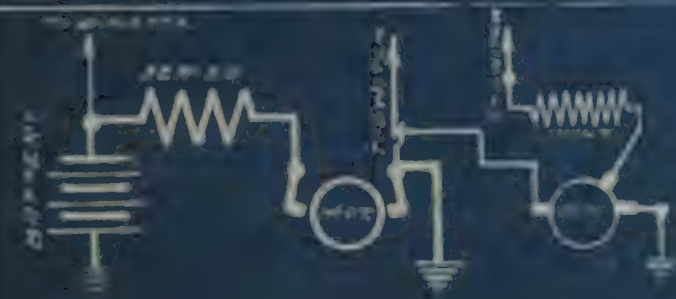
PAGE DELCO MANUAL



MOTOR-GENERATOR NO. 58-59-73-75-76-81-88-93



MOTOR-GENERATOR NO. 70-84-517



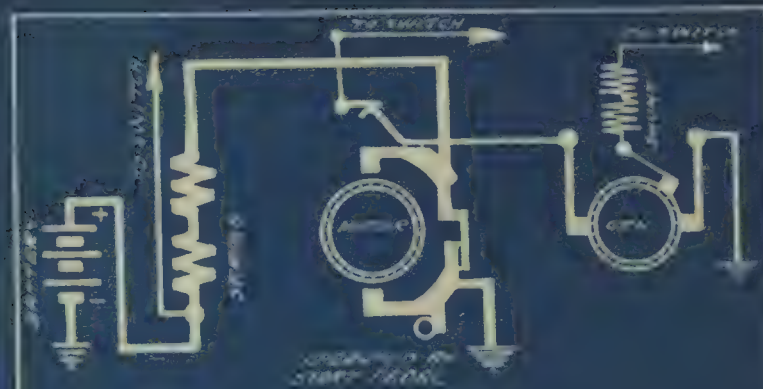
MOTOR-GENERATOR NO. 75-98



MOTOR-GENERATOR NO. 12-19

## DELCO INTERNAL CIRCUITS

FRONT DECK MANUAL



MOTOR-GENERATOR 82-112-140-



MOTOR NO. 72  
GENERATOR NO. 91



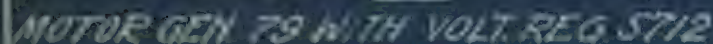
MOTOR 72-83-85-88-90-102-104-108-117  
 GENERATOR 84-87-89-95-101-103-105-111-119  
 123-125-127-129-131



GENERATORS 108-110-118-125-  
MOTORS 72-8-110-91-96-101-127-172-

Automotive Electronics

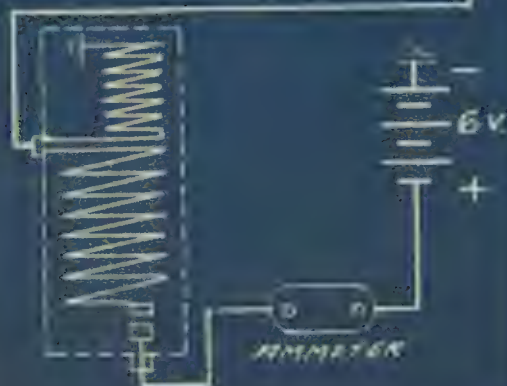
REPORT OF THE COMMISSION





# WAGNER INTERNAL CIRCUIT

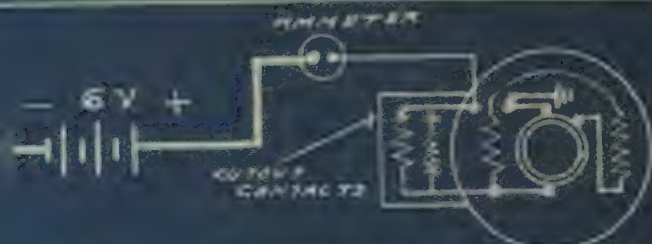
FROM SKETCH BY A. J. P.



EM 165 GEN WITH CUT OUT

# DELCO INTERNAL CIRCUITS

FROM DELCO MANUAL

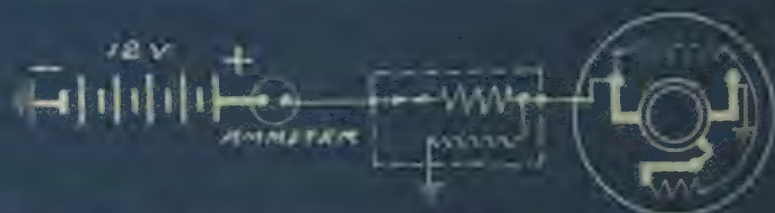


165-169-176-180-168 GENERATOR WITH CUT OUT

NOTE: STARTING CIRCUIT CLOSED THRU HELMUTHAL ACTION OF D-ARM SWITCH



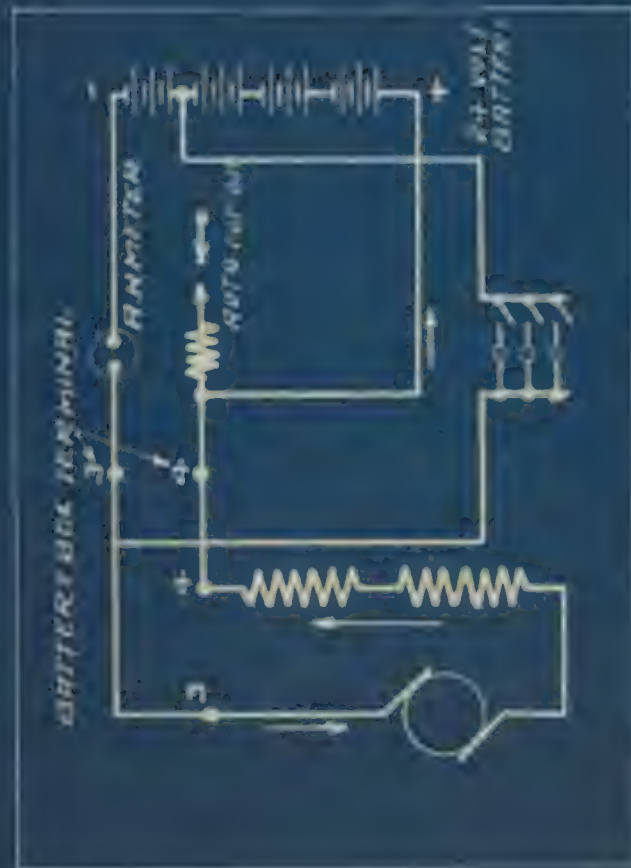
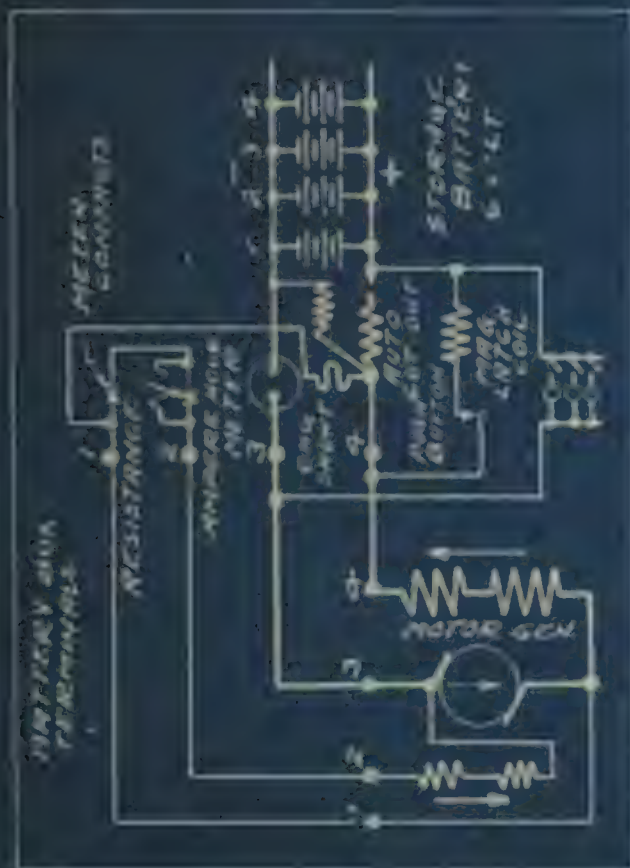
MOTOR 161-170



GENERATOR 156 WITH CUT OUT

# **DELCO 1912-13 6-24 VOLT SYSTEM** **INTERNAL MOTOR AND GENERATOR CONTROL**

H. J. PIERSON



## DELCO CONTROL PANEL

## 6-24 VOLT SYSTEM

FROM DELCO FORD

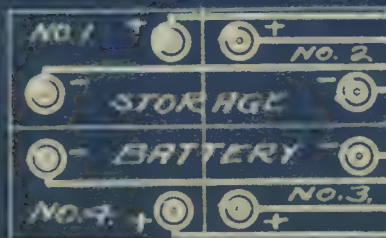


1994年12月  
 1995年1月

## METER CONTACTS

۴۷۵

TOP OF 6-24 VOLT  
CONTROLLER SHOWING  
LEADS TO BATTERY

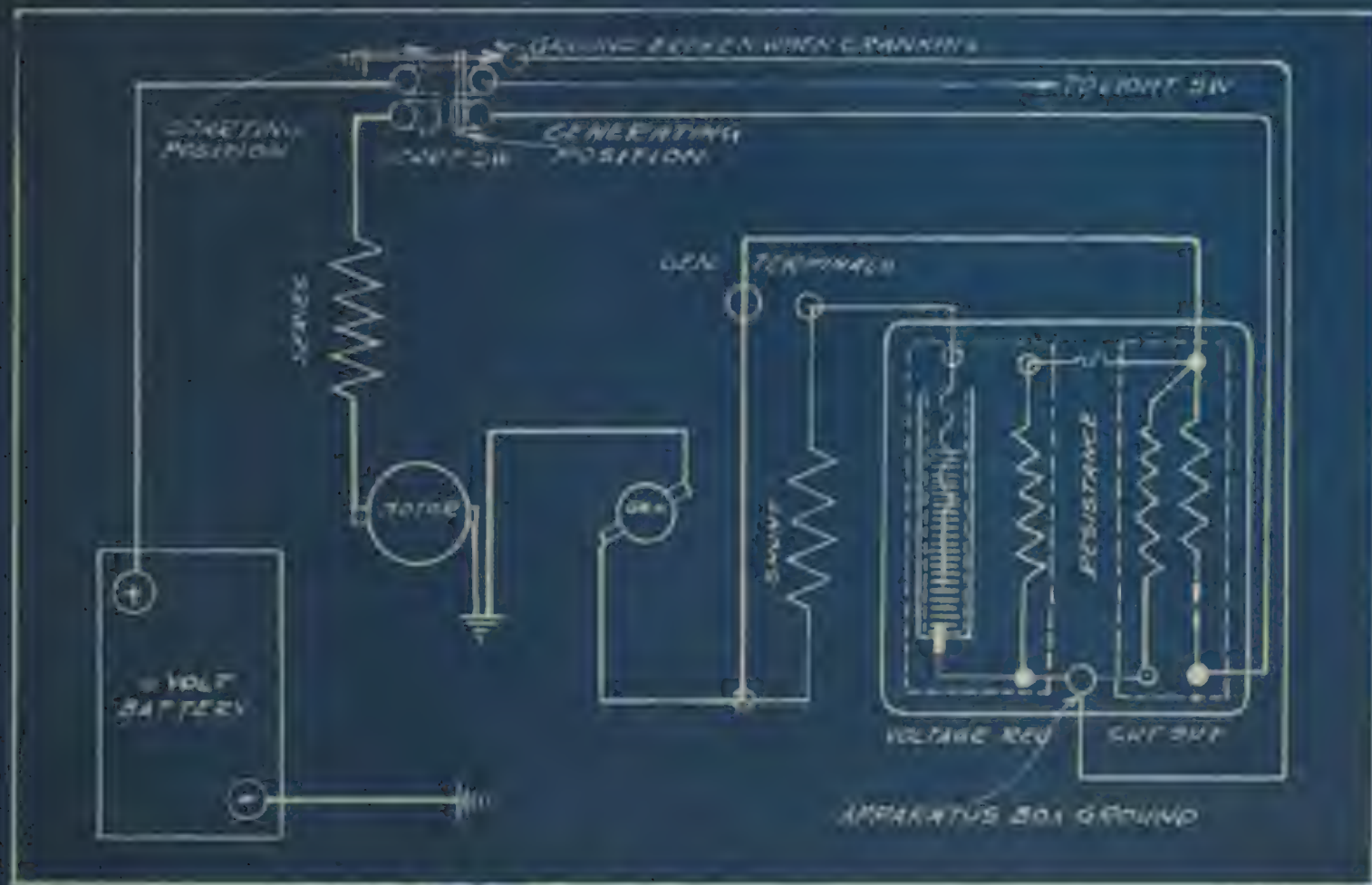




# DELCO VOLTAGE REGULATOR

## INTERNAL CIRCUITS

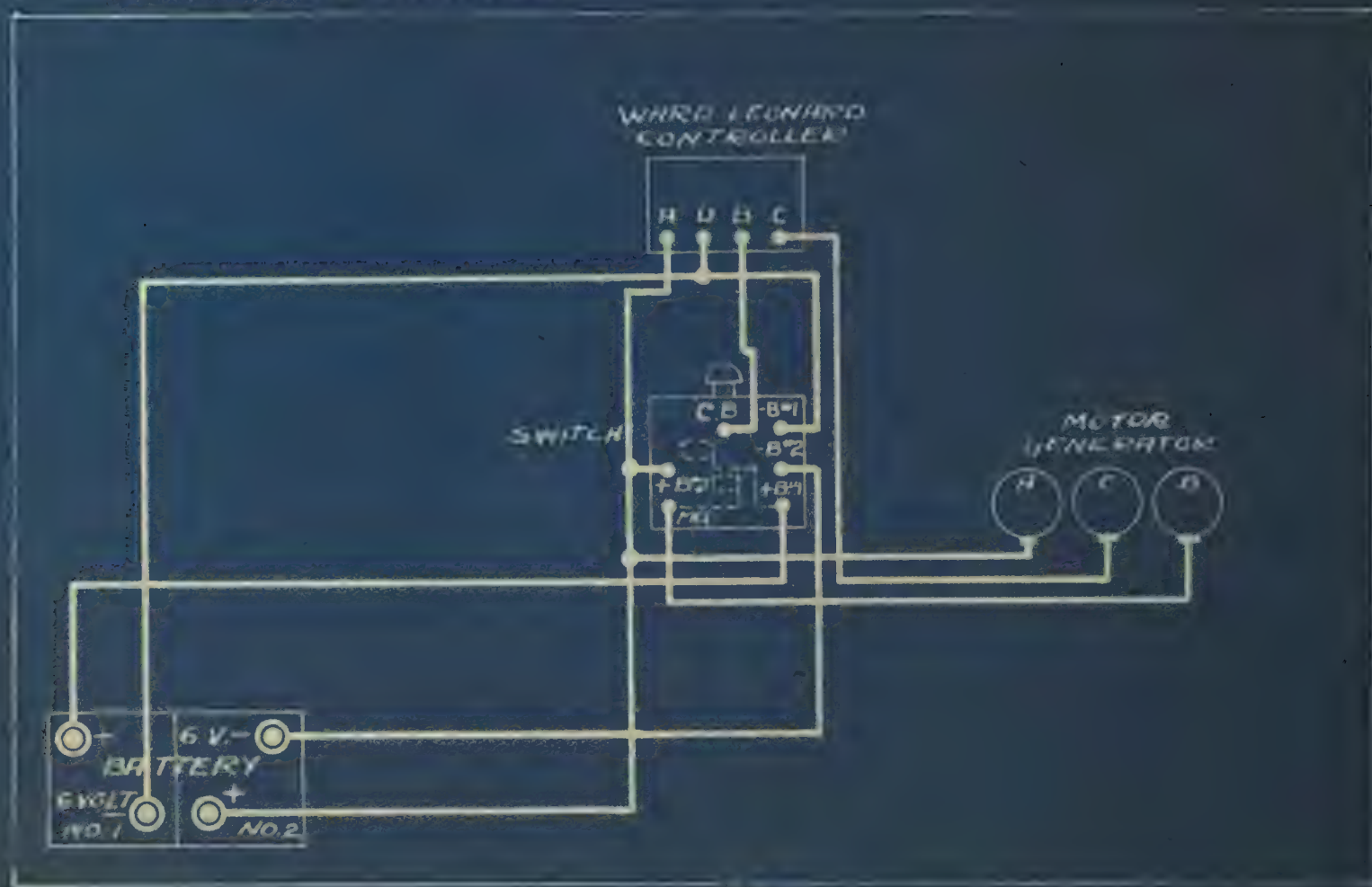
DELCO MANUAL



# DETROIT R-S MOTOR-GENERATOR

INSTALLATION FOR CARS NOT  
ORIGINALLY EQUIPPED.

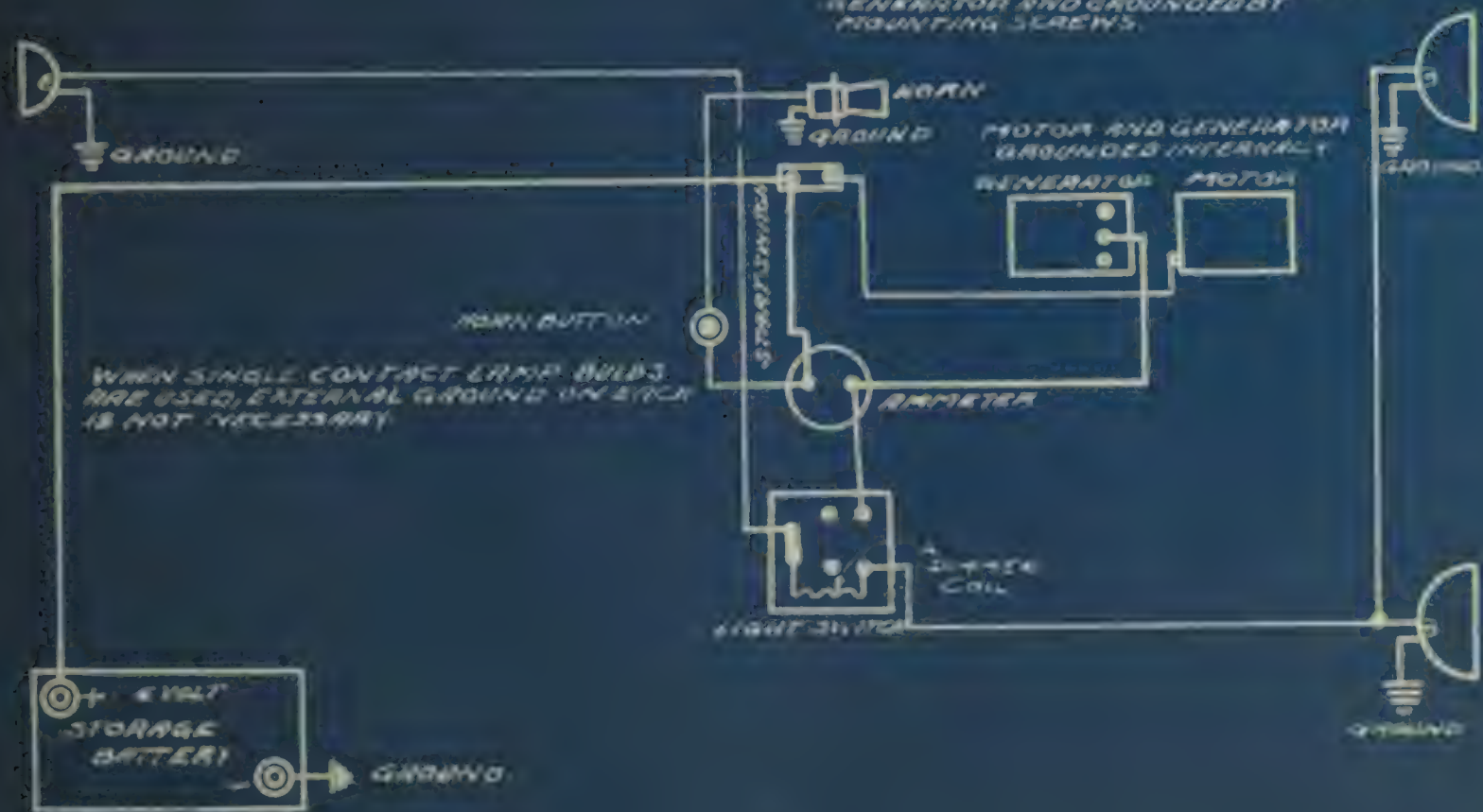
R.S.P.



**DISCO - STANDARD INSTALLATION**  
GENERATOR 500-100 MOTOR 400-200

25/3/20 2400HRS.

REGULATED MOUNTED INTEGRAL WITH  
GENERATOR AND GROUND BY  
MOUNTING SCREWS

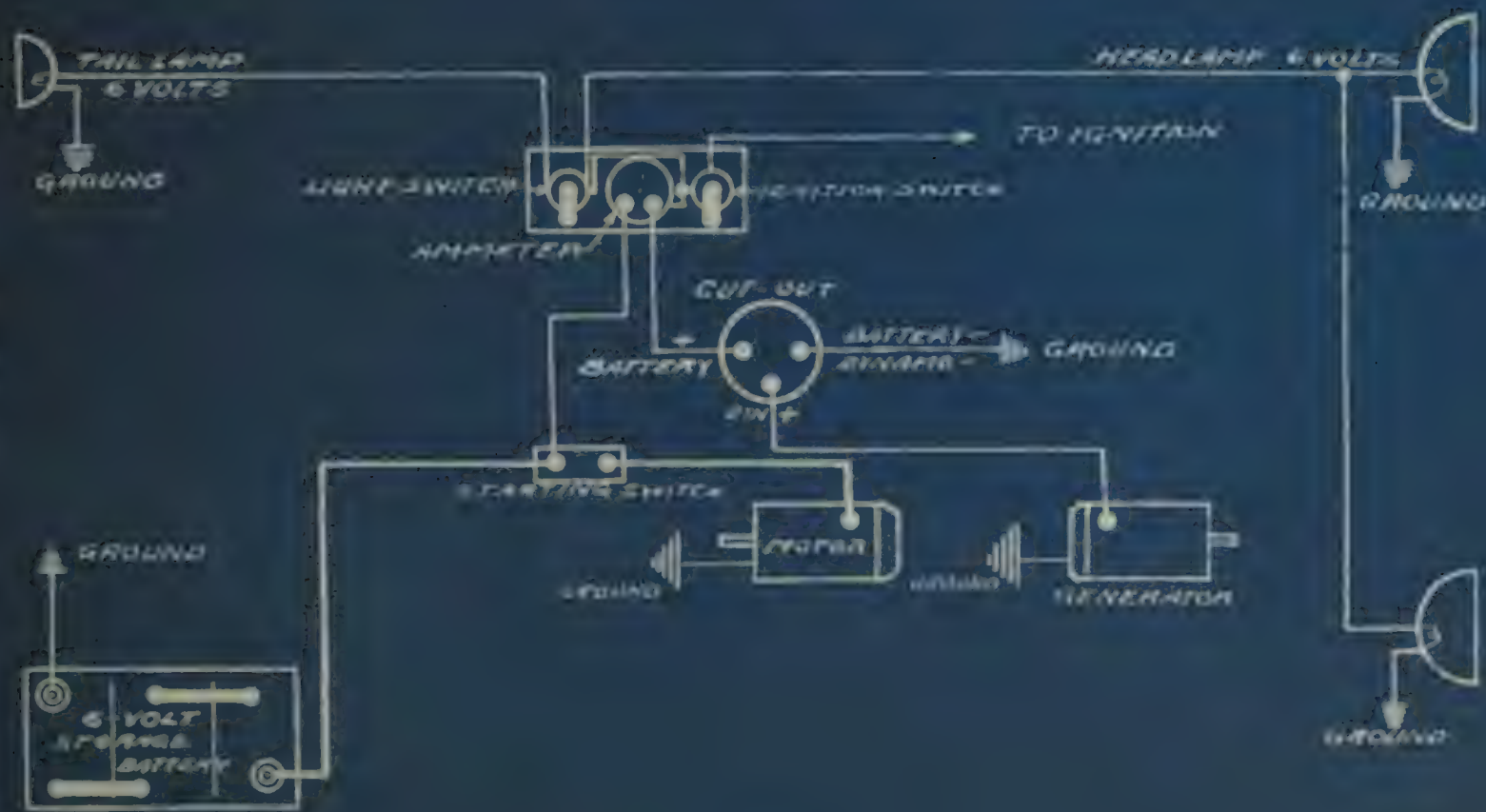






# DISCO TWO UNIT STANDARD DIAGRAM MODELS 30 TO 39

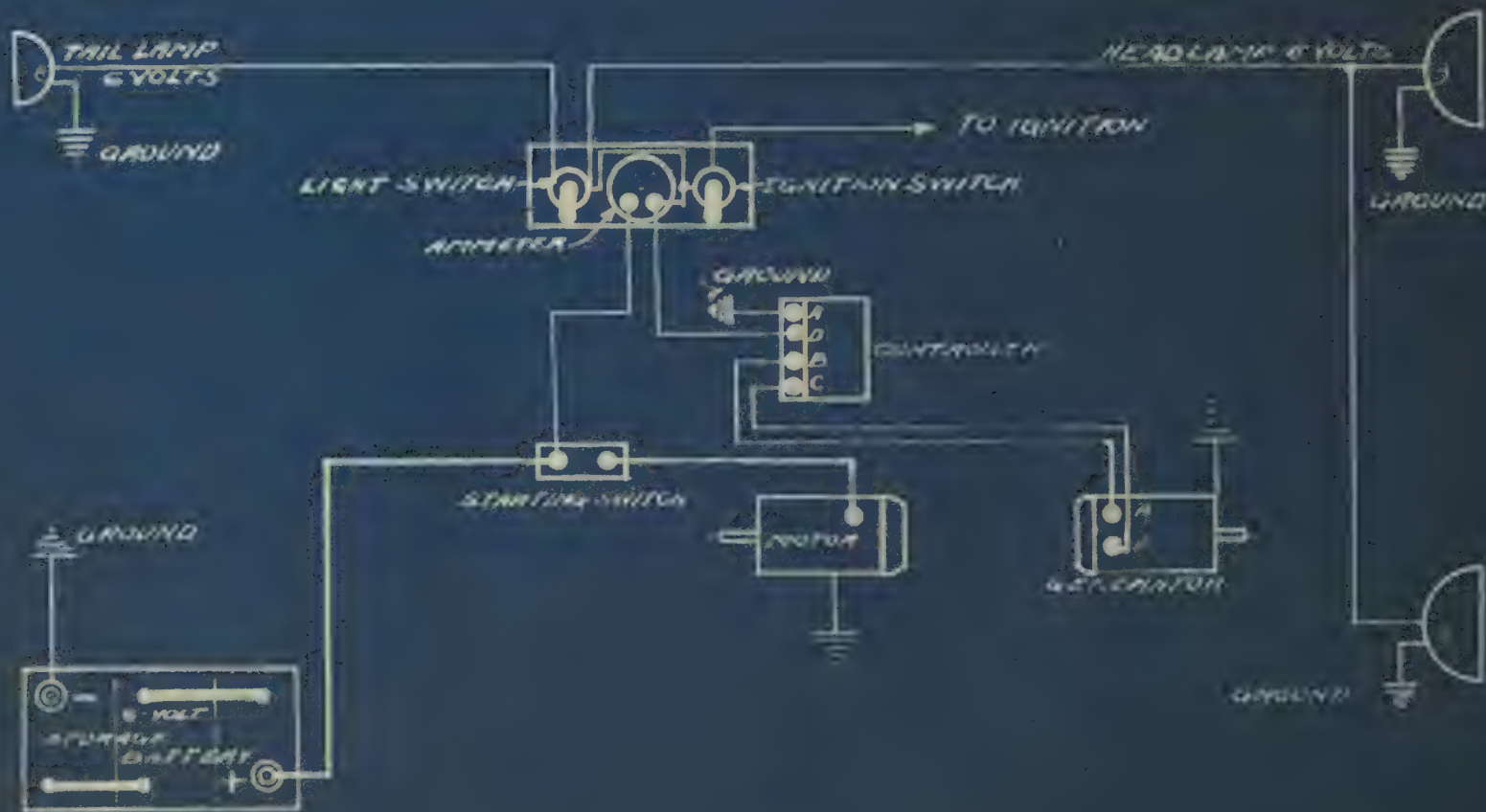
PROPT DISCO PHILETIN



# DISCO TWO UNIT STANDARD

## DIAGRAM MODELS 40 TO 49

FROM DISCO BULLETIN

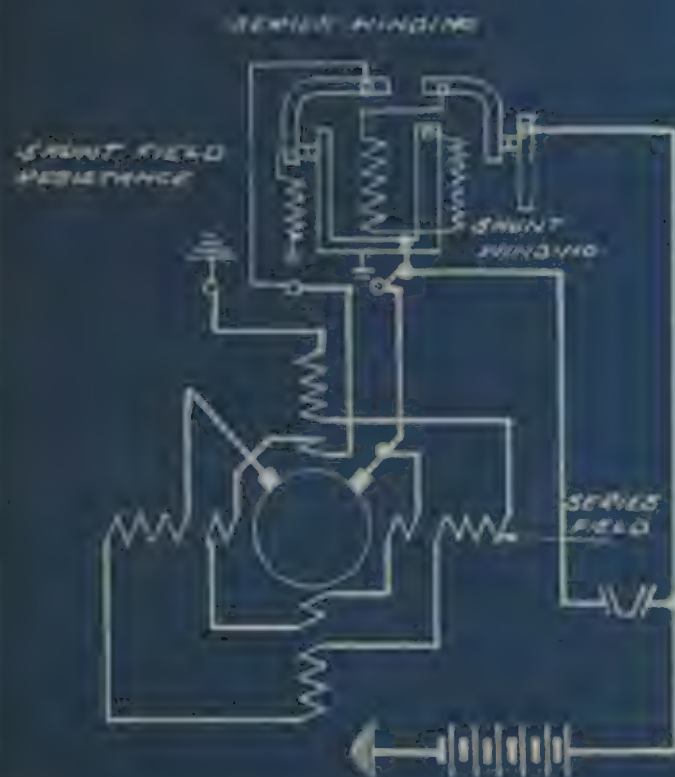




# DISCO INTERNAL CIRCUITS

FROM SKETCH BY R.T.P.

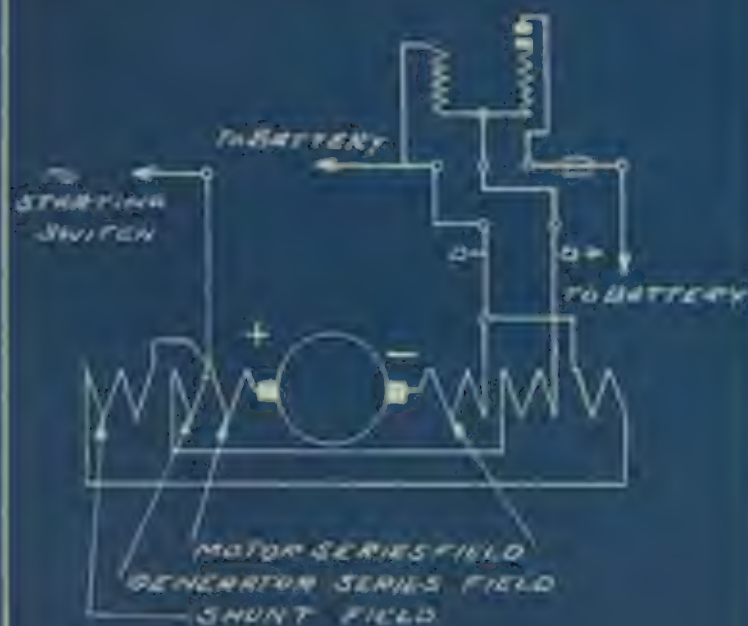
## 12-VOLT MOTOR-GENERATOR WITH REGULATOR



# SPLITDORF-APELCO INTERNAL CIRCUITS

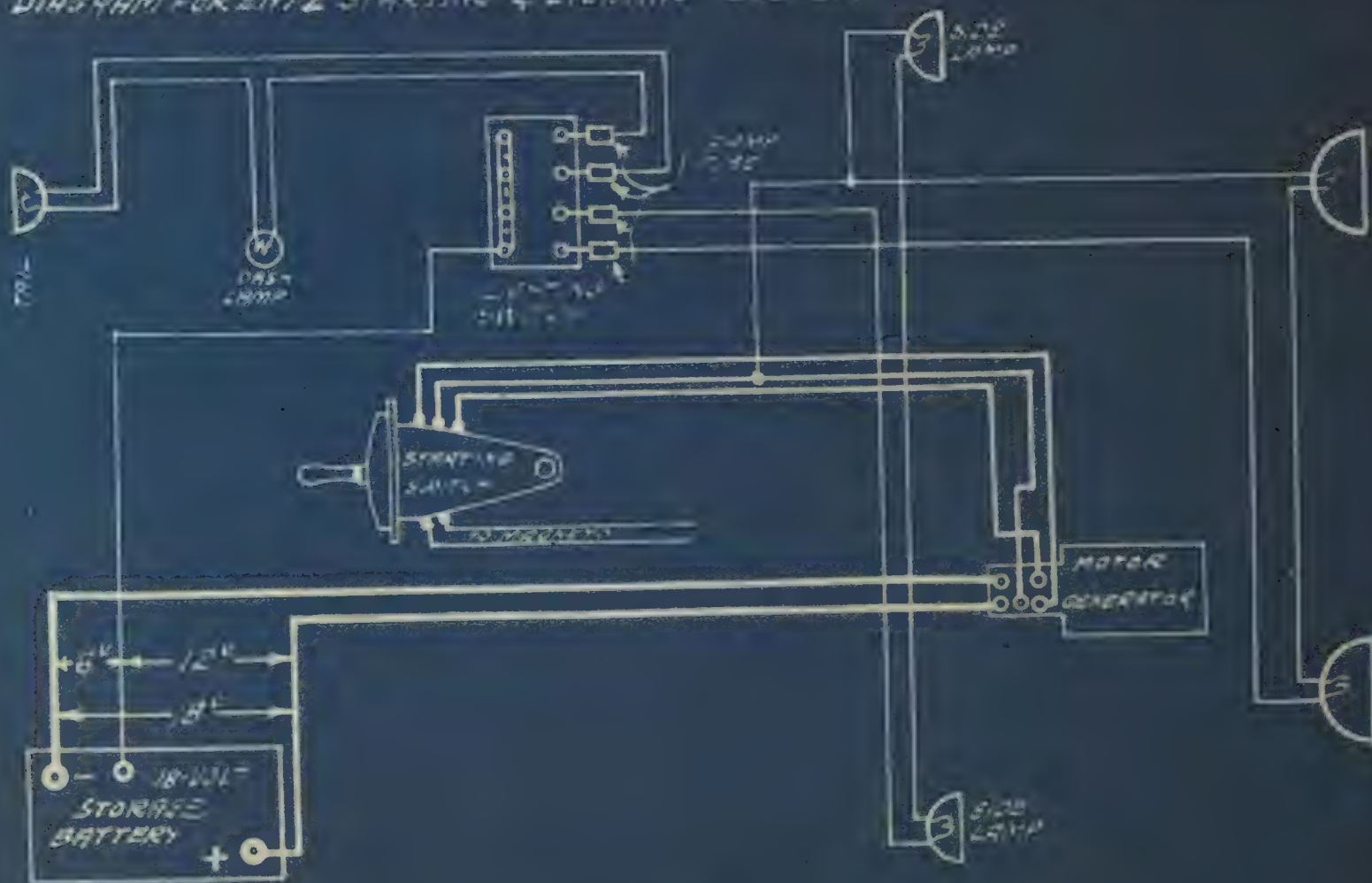
FROM SKETCH BY R.T.A.

## 12-VOLT MOTOR-GENERATOR WITH CUT-OUT



# **DYNETO STANDARD WIRING** **DIAGRAM FORENTZ STARTING & LIGHTING SYSTEM**

FROM DYNBPX-1003

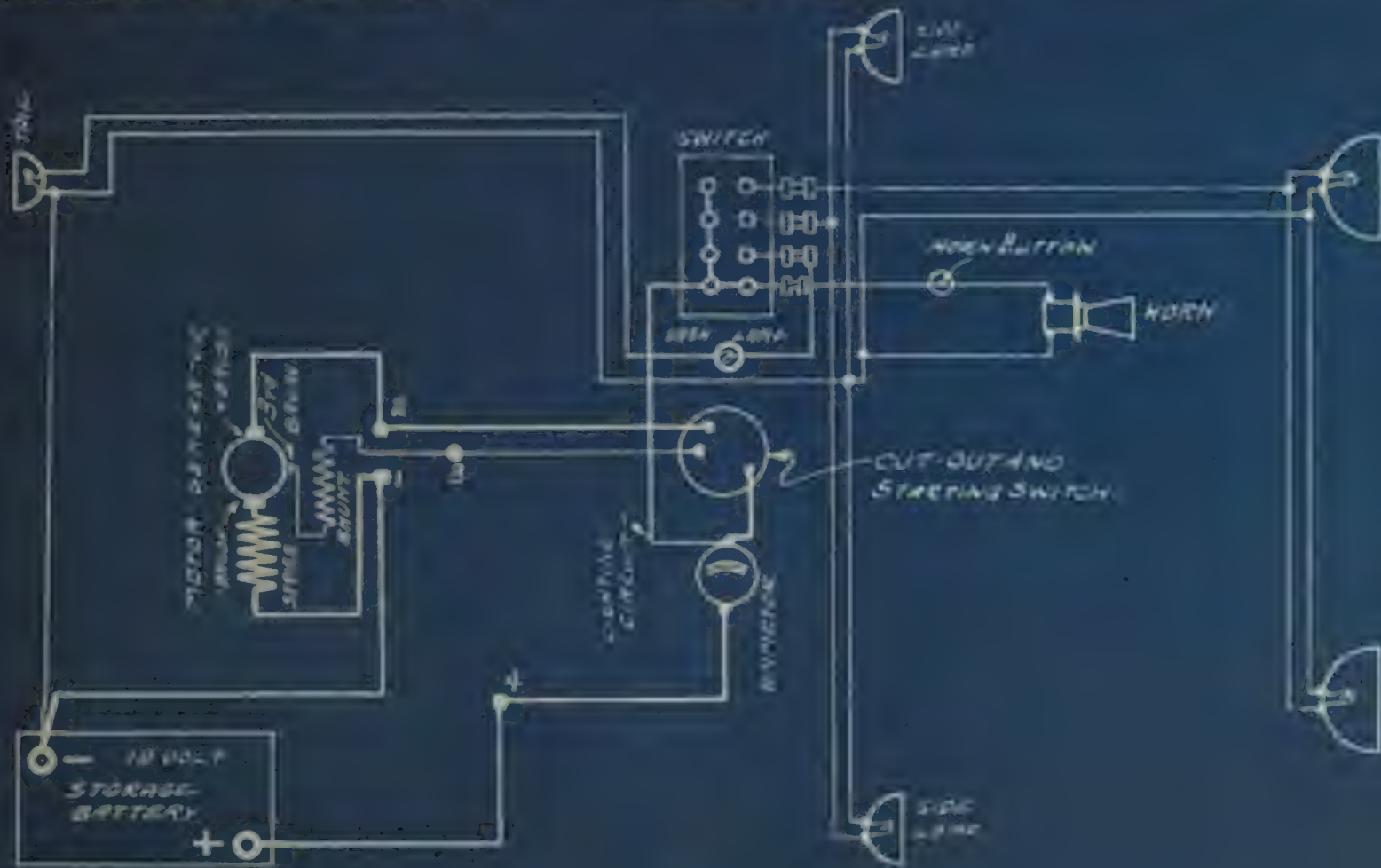


# DYNETO SINGLE UNIT WIRING DIAGRAM

## CONNECTION FOR 4 TERMINAL UNIT

## MODEL A & B

FROM DYNETO BULLETIN

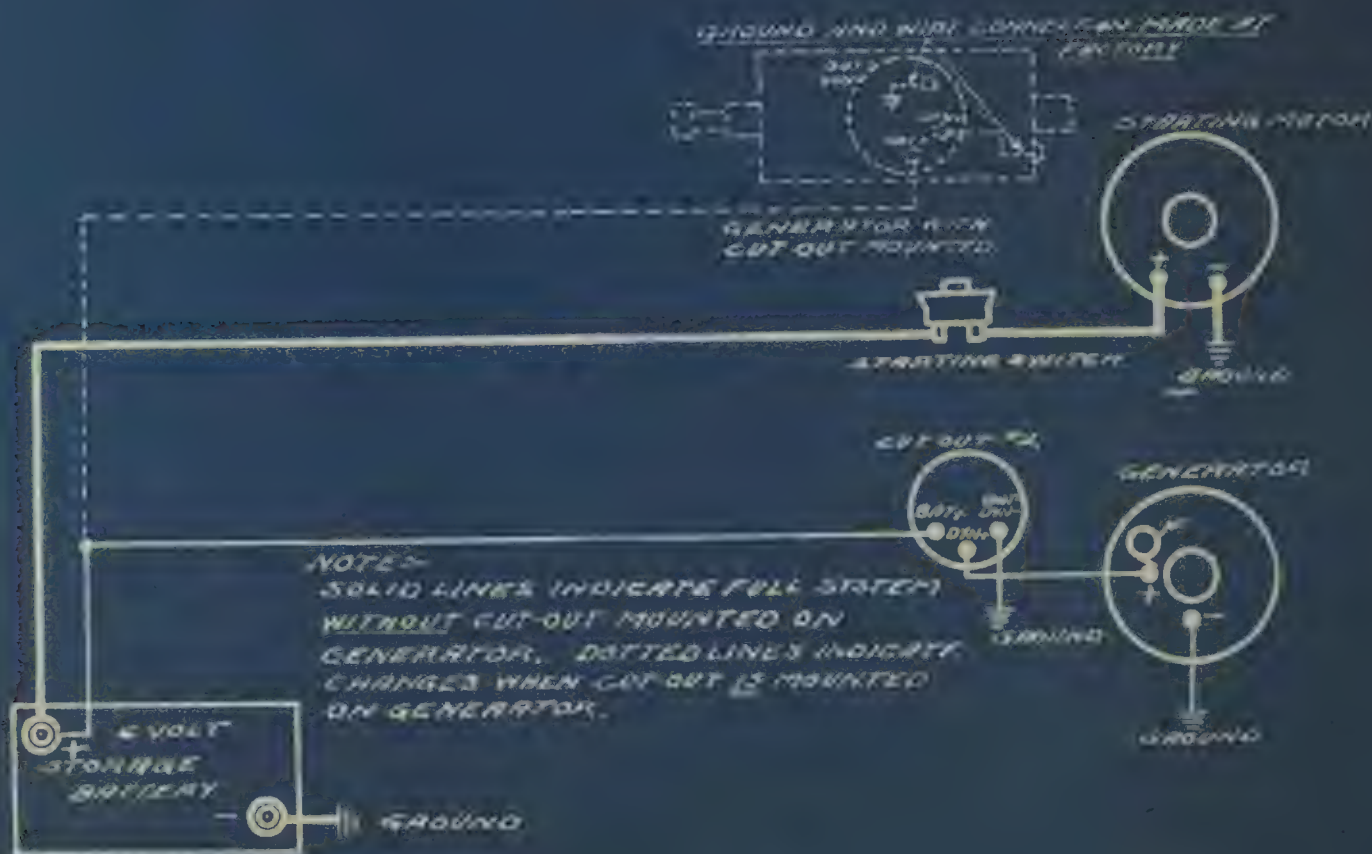




# DYNETO TWO UNIT STARTING SYSTEM

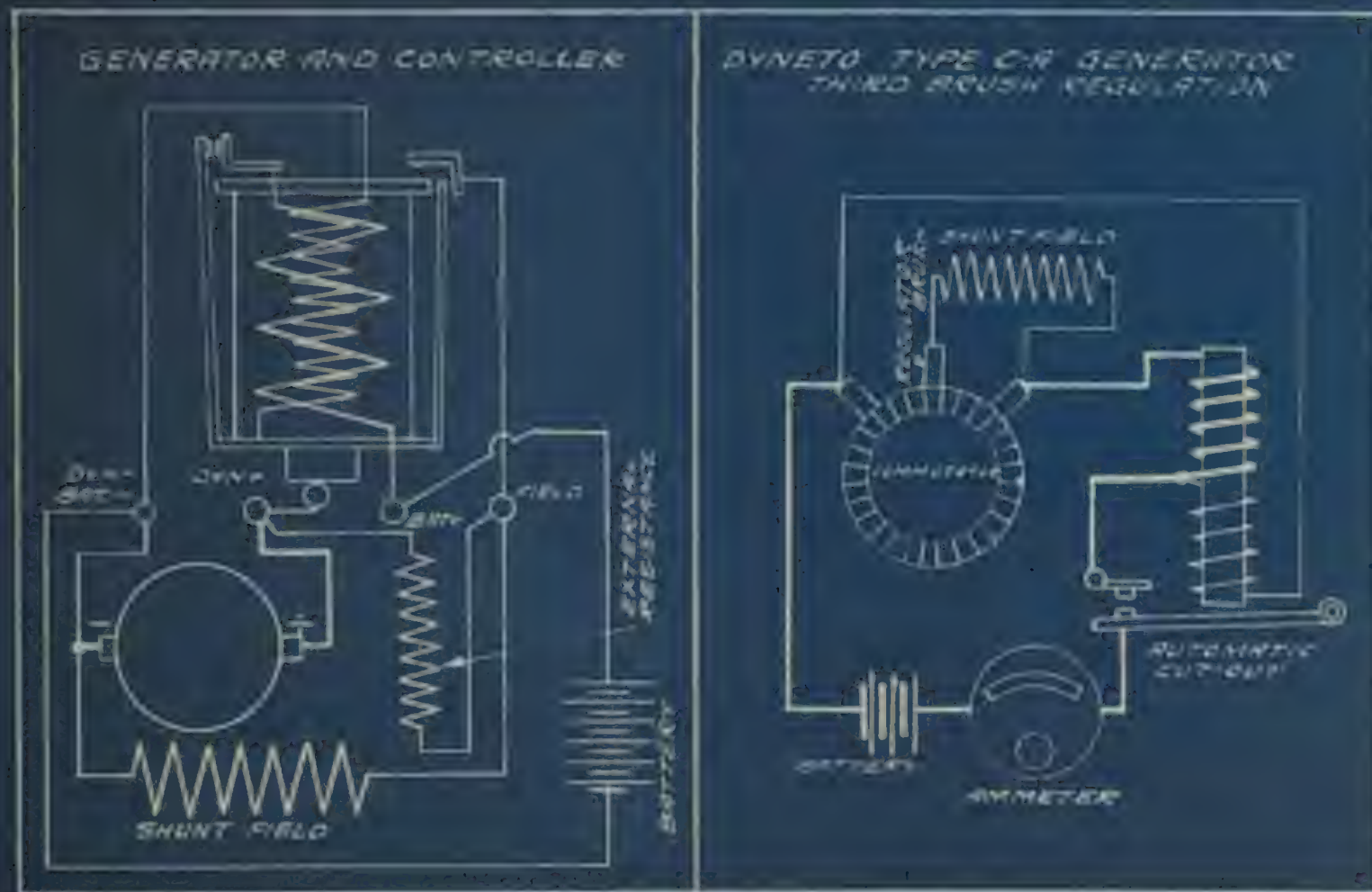
FROM DYNETO DRAWINGS

CONNECTIONS FOR SINGLE WIRE SYSTEM WITH STYLE "DR" MOTOR AND "GA" GENERATOR



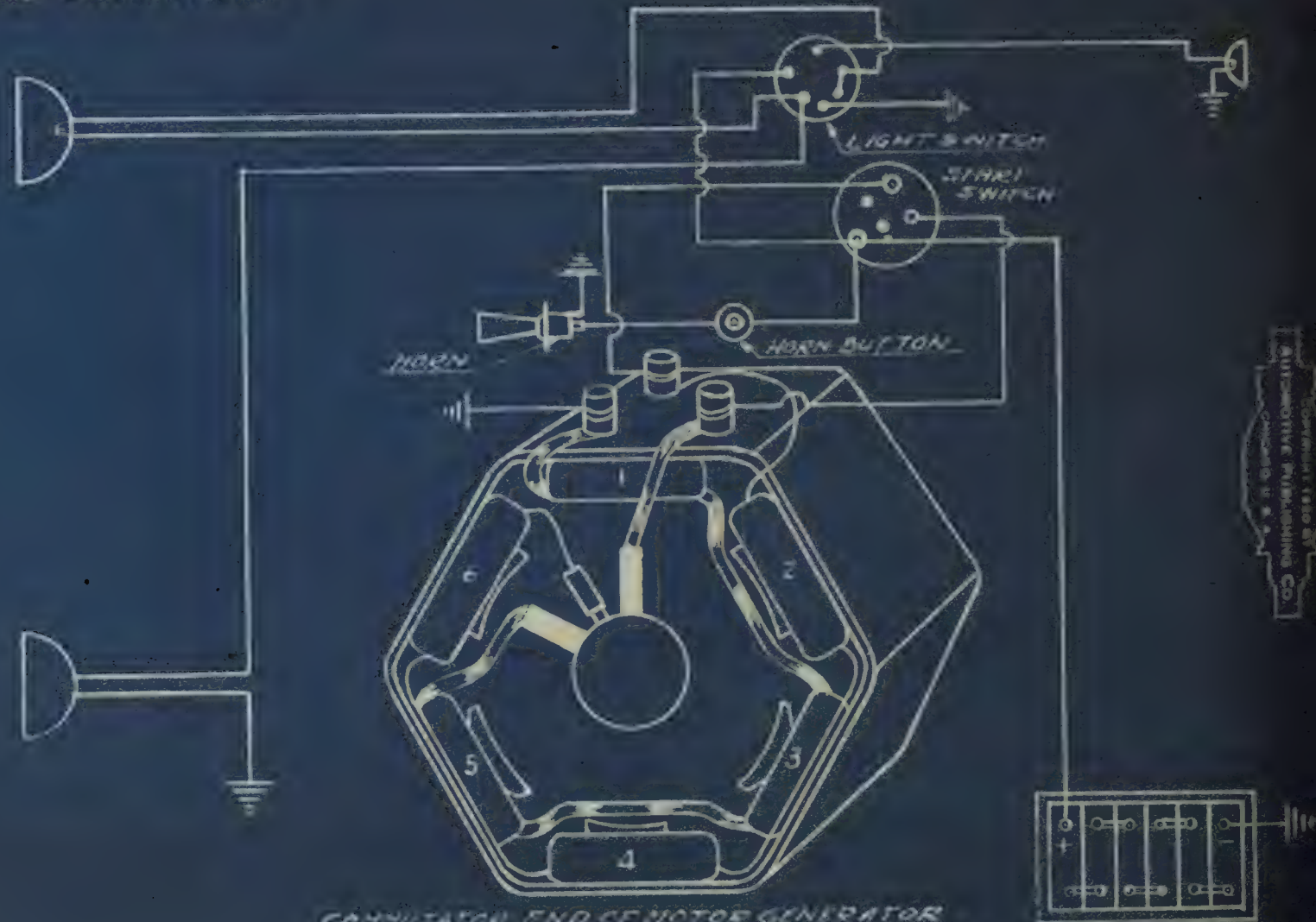
## DYNETO INTERNAL CIRCUITS

FROM DYNETO SERVICE MANUAL



# DYNETO MOTOR-GENERATOR INTERNAL CONNECTIONS

FROM DYNETO S. P. Q-1142m



COMMUTATOR END OF MOTOR GENERATOR  
SERIES WINDING COILS 1.3 5 SHUNT COILS 2-3-4

12V BATTERY

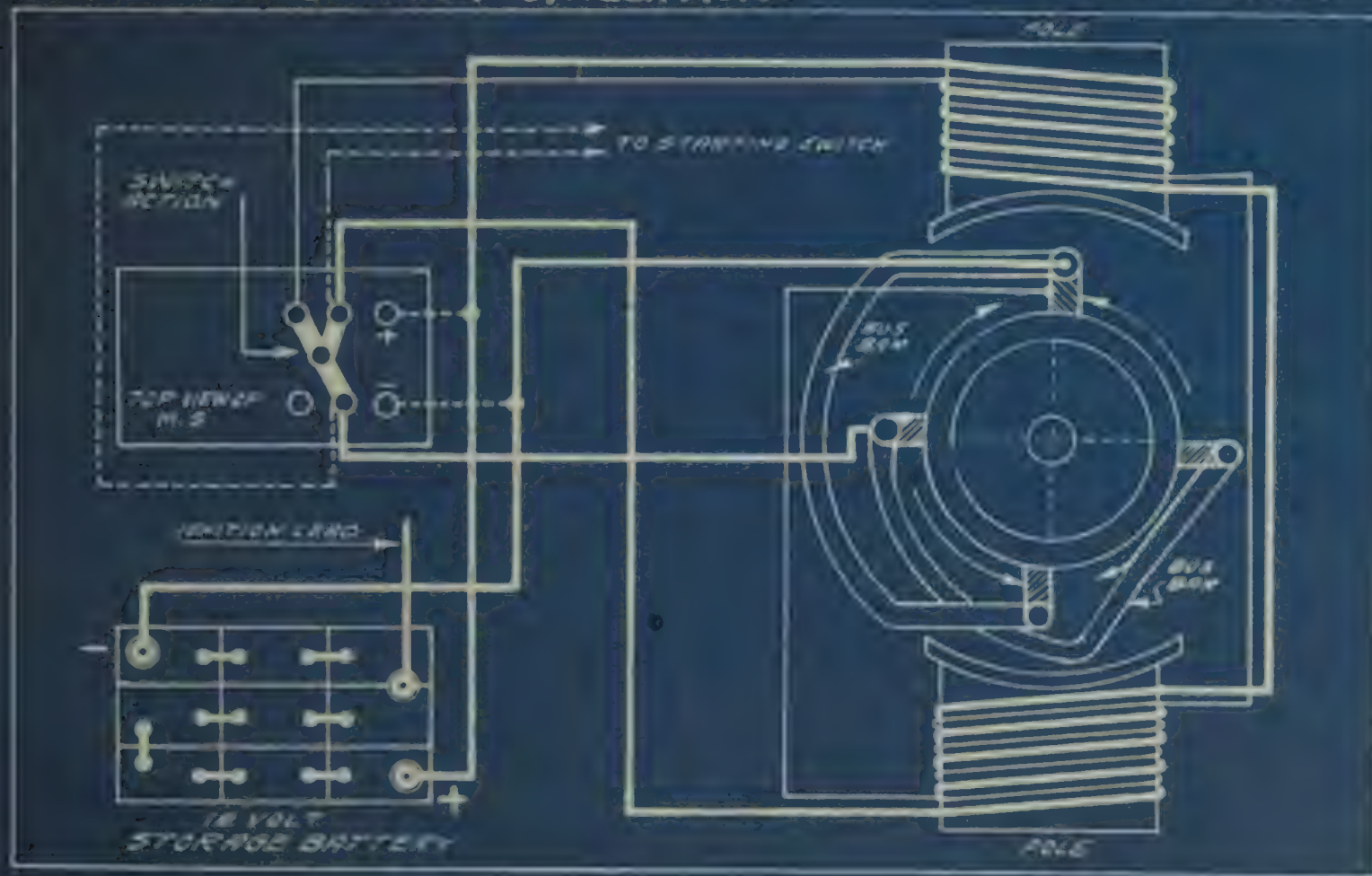
COPYRIGHT 1930 BY  
AUTOMOTIVE PUBLISHING CO.  
CHICAGO, ILL.



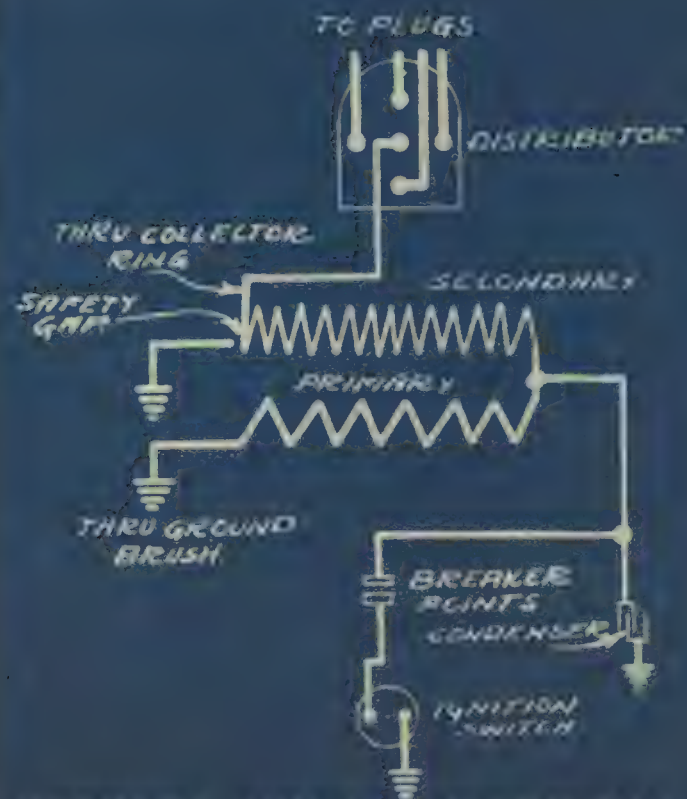
# DYNETO-ENTZ INTERNAL CIRCUITS

CHALMERS AND WHITE INSTALLATION.

FROM SECTION BY S. J. P.



# EISEMANN MAGNETOS



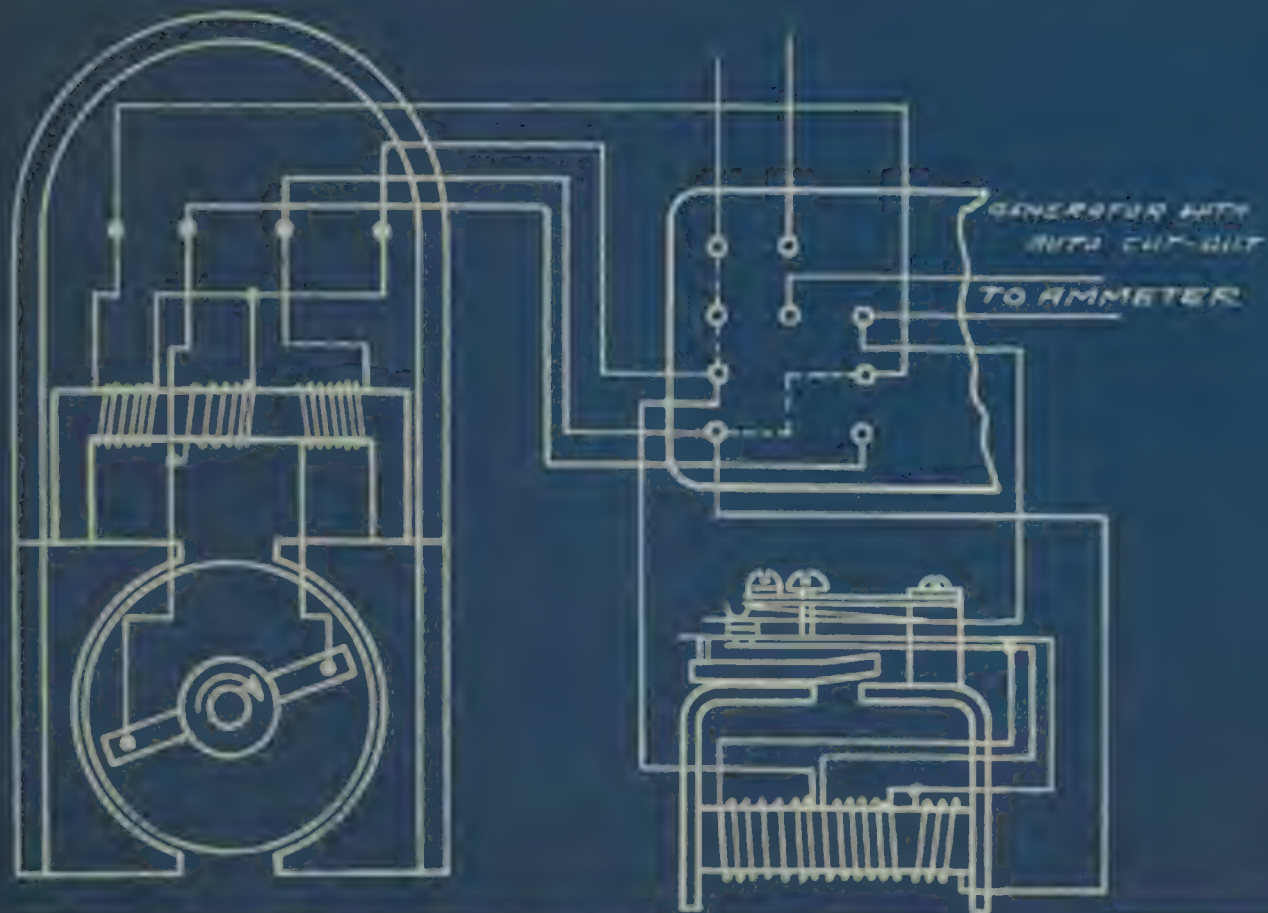
INTERNAL CIRCUITS EISEMANN  
G9 MAGNETO.  
FROM ENGINEER'S SKETCH



EXTERNAL CIRCUITS EISEMANN  
EM MAGNETO. DUAL IGNITION.  
FROM EISEMANN INSTR. BK.

# ESTERLINE INTERNAL CIRCUITS

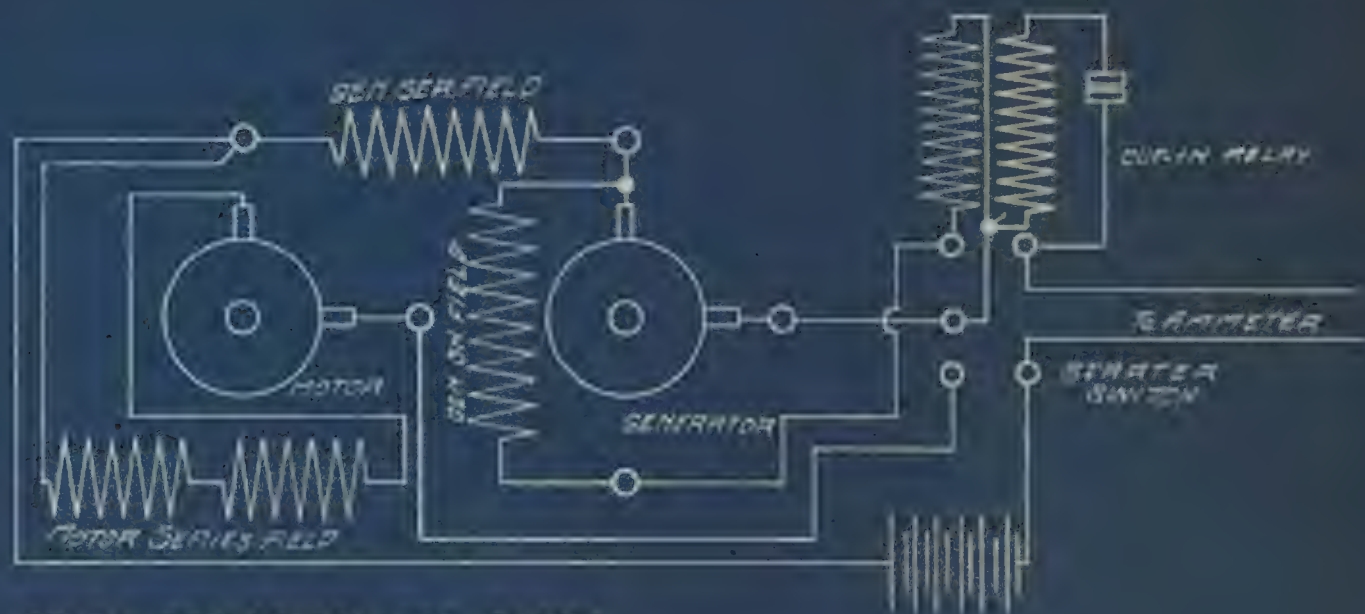
FROM HERS. 8-P-834





# FISCHER INTERNAL CIRCUITS

PERSONAL RECORDS-D.M.R.

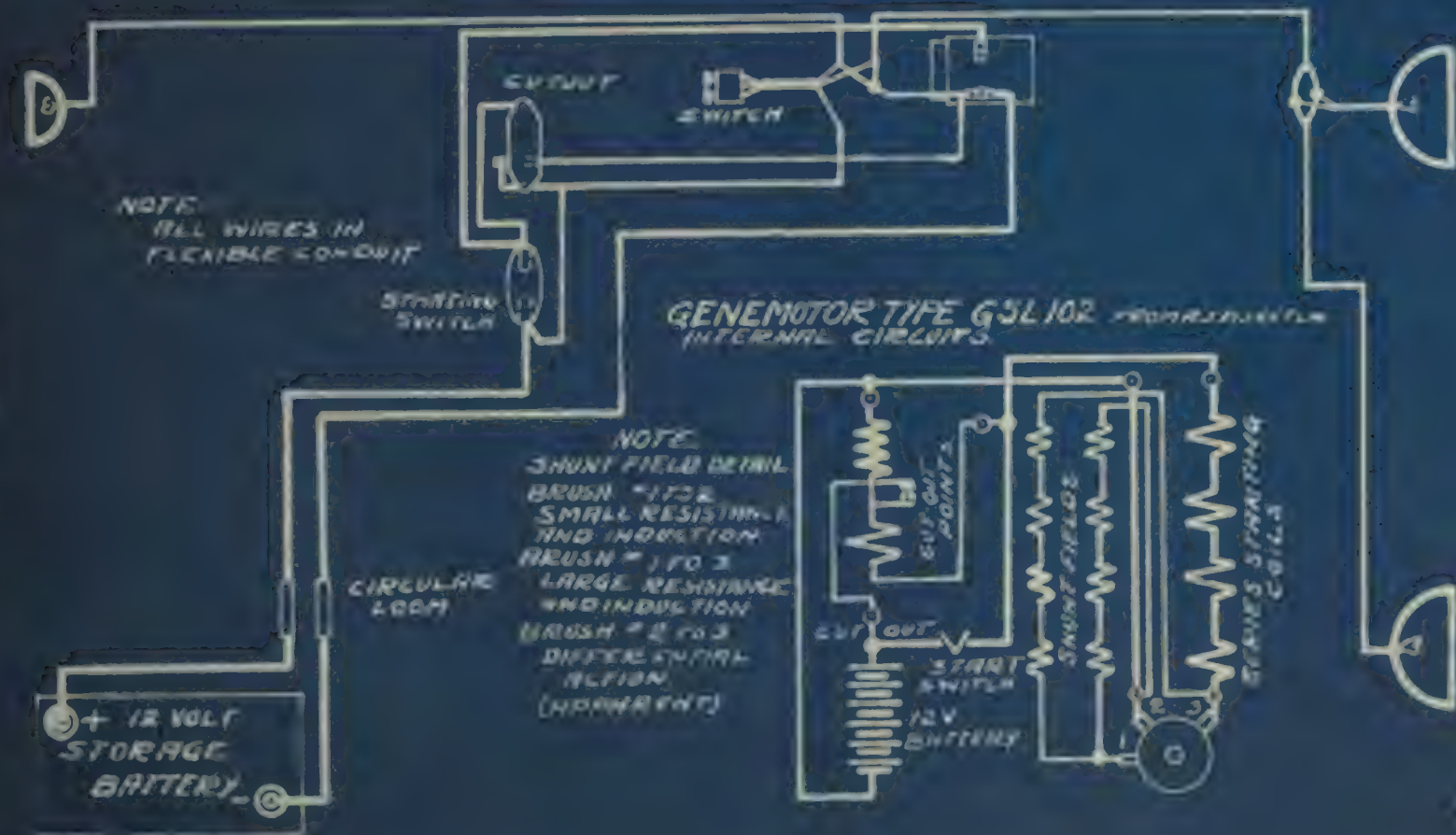


DOUBLE DECK MODEL FOR FORDS

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 All Rights Reserved  
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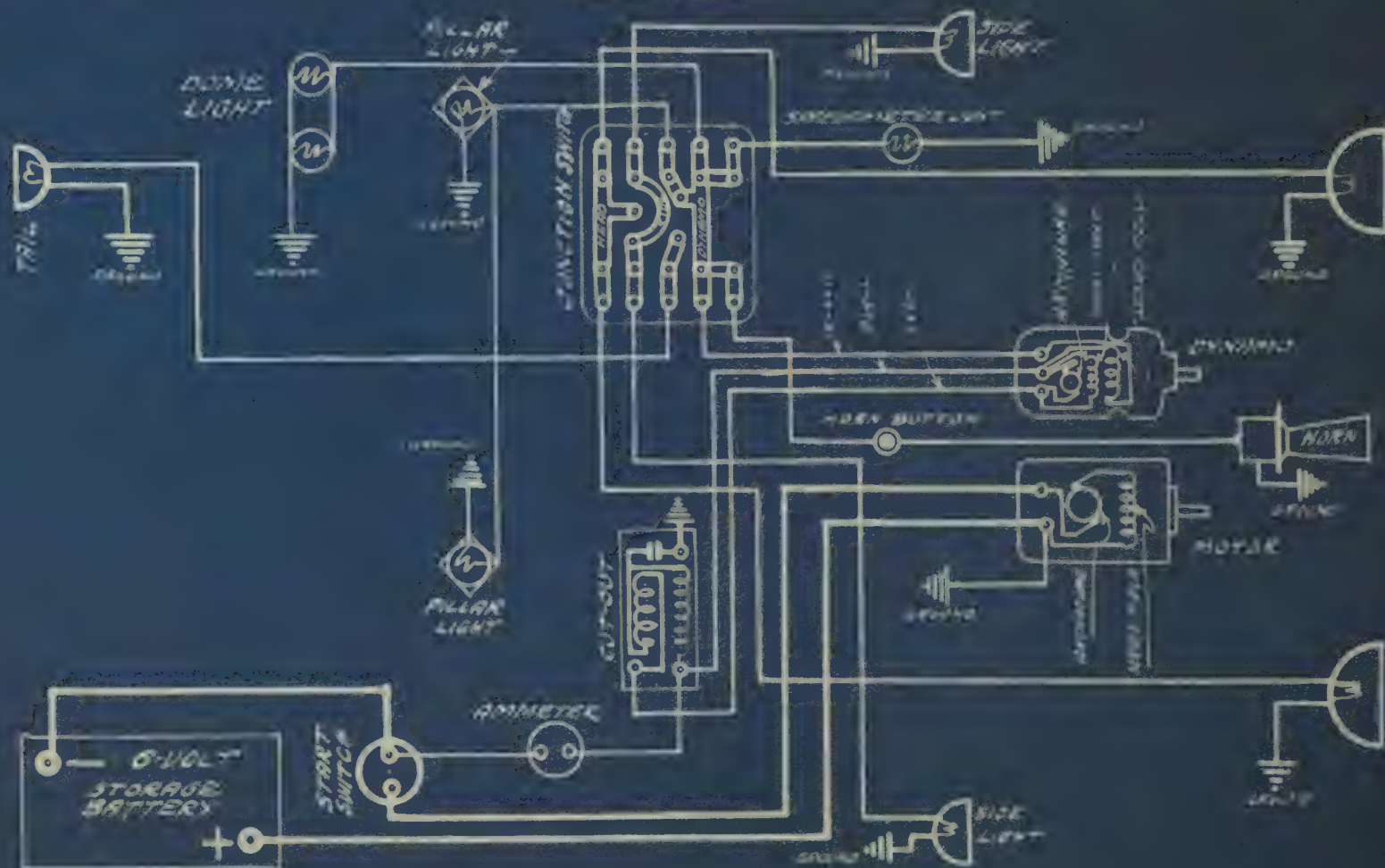
# GENEMOTOR TYPE G5L102 WIRING AND INTERNAL CIRCUITS

FROM G5L102 INSTRUCTION



# GRAY & DAVIS STANDARD GROUNDED SYSTEM 1913-1914

FROM A.D. INST. 1914

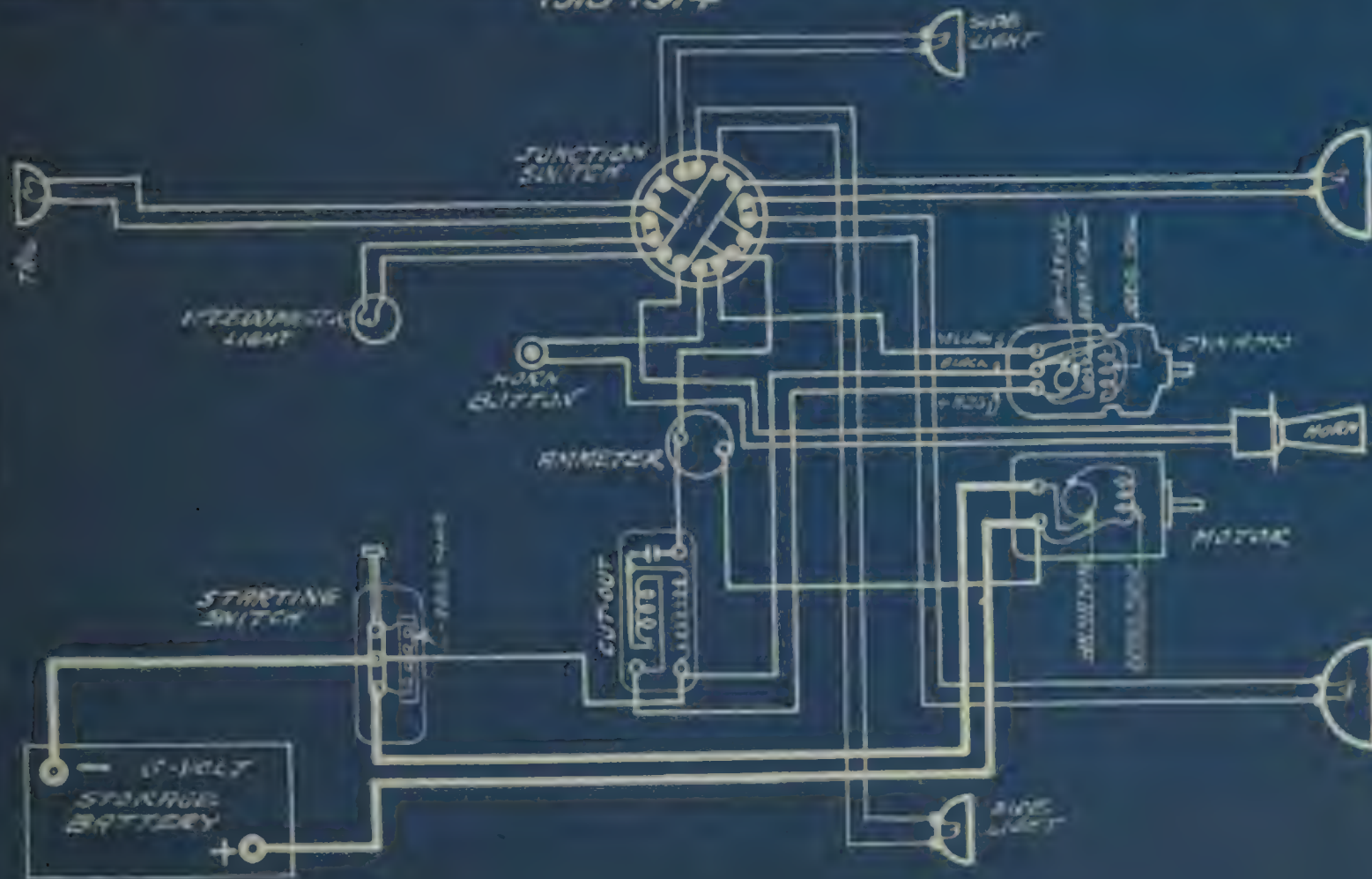


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Automotive Publishing Co.  
New York, N.Y.



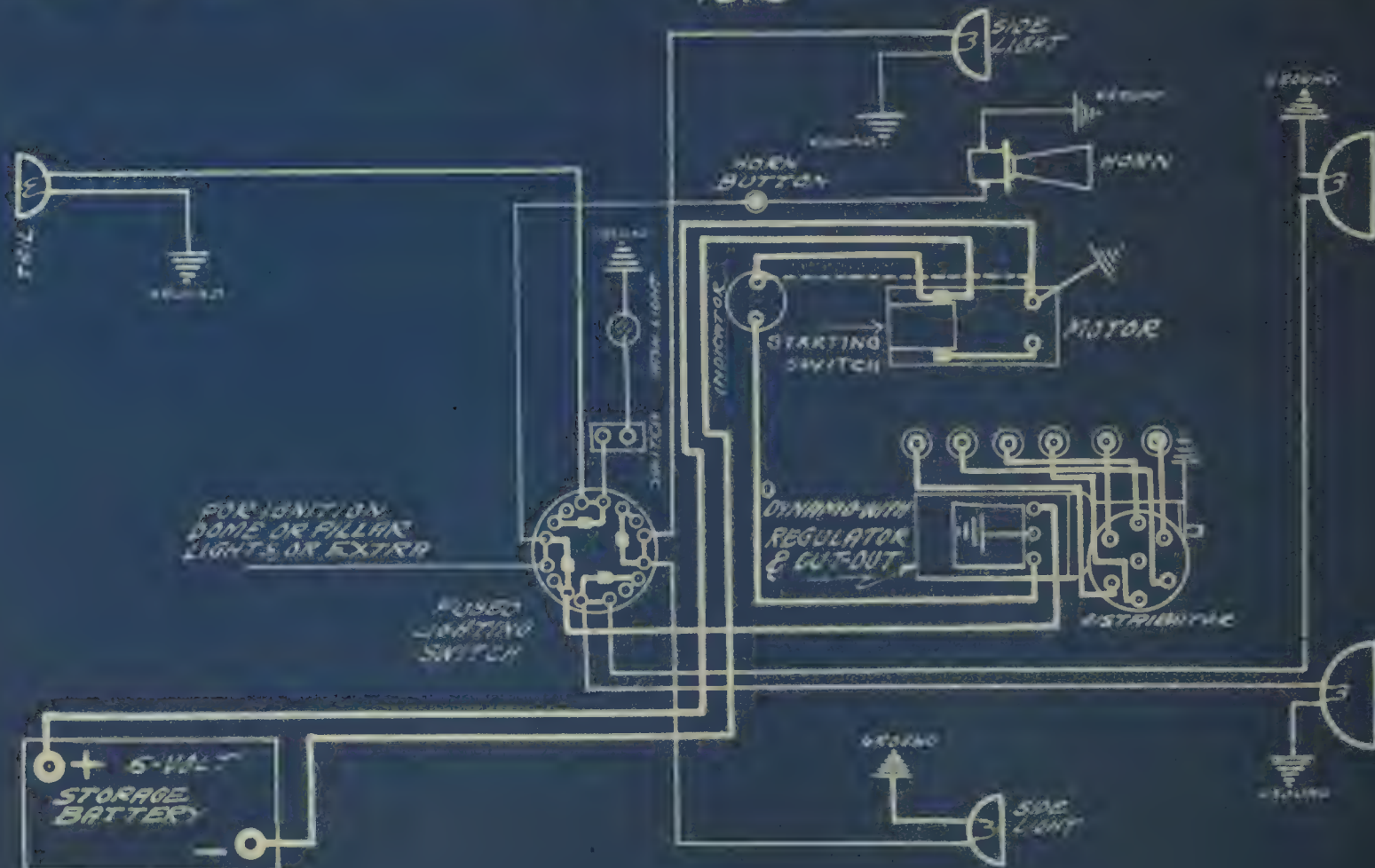
# GRAY & DAVIS STANDARD 2 WIRE SYSTEM 1913-1914

FRAMED INST. BK.



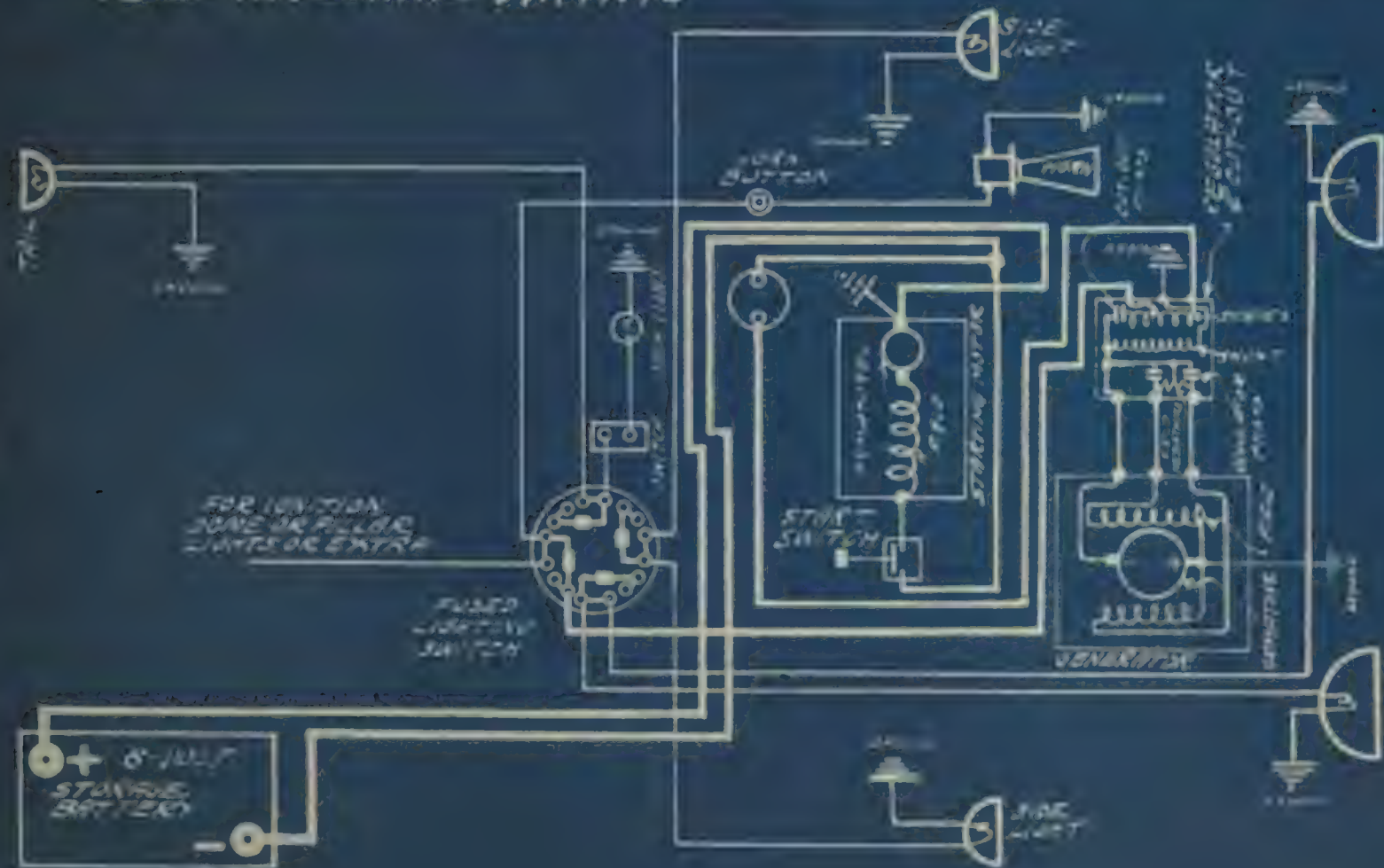
# GRAY & DAVIS STANDARD GROUNDED SYSTEM 1915

FROM G.P.D. INST. BK.



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Automotive Publishing Co.  
Chicago, Ill.

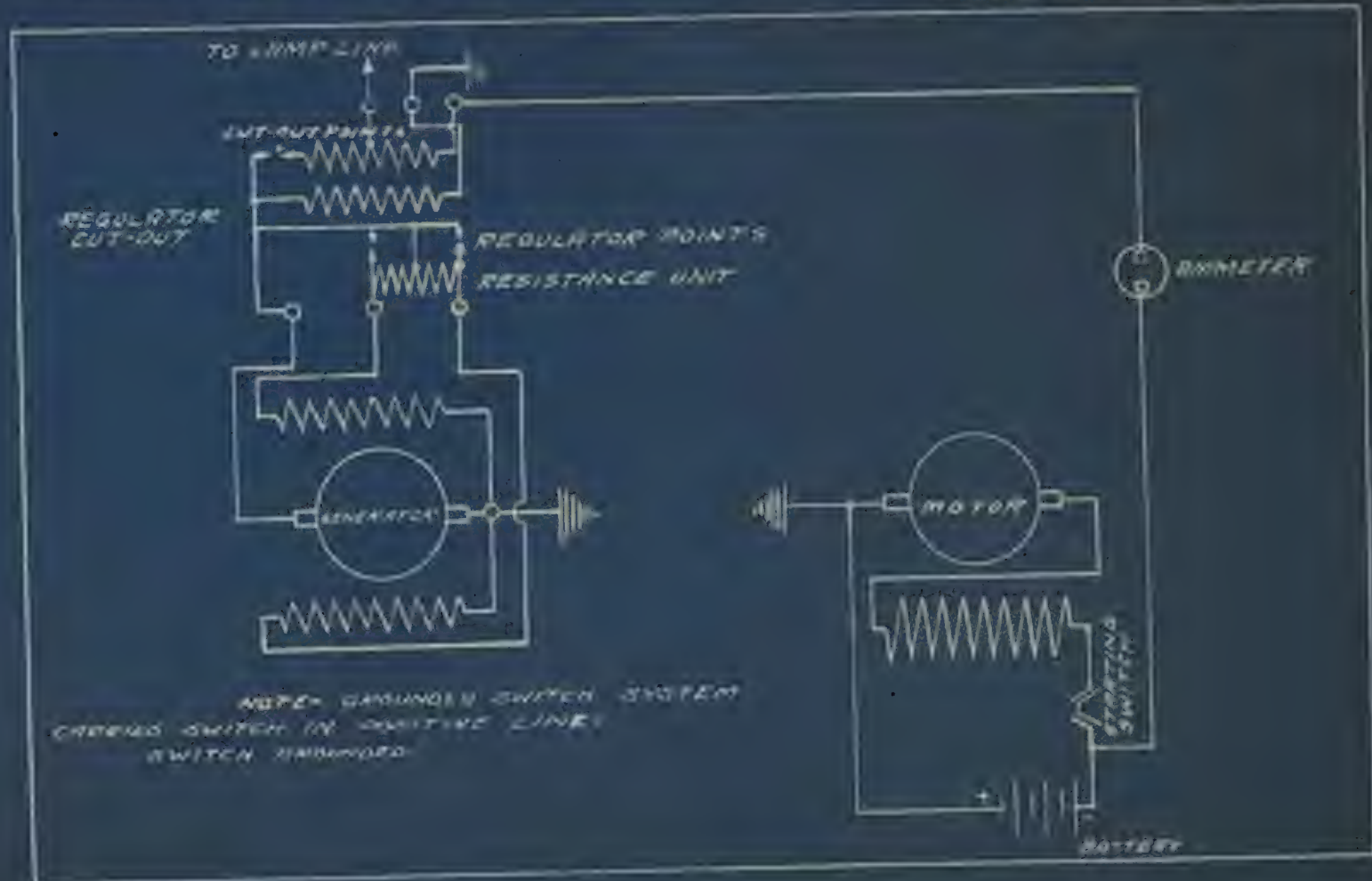
FRUIT OF THE INST. 5th





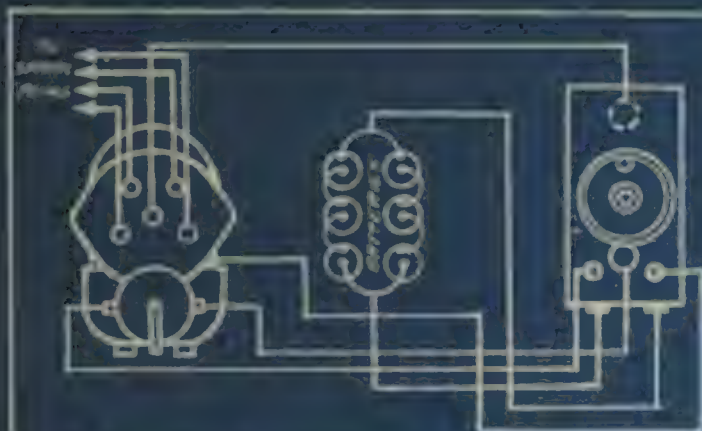
# GRAY & DAVIS TWO UNIT INTERNAL CIRCUITS

FROM SKETCH BY G.M.P.



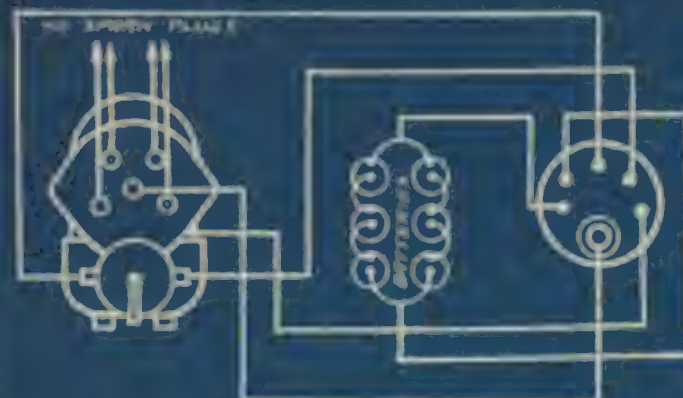
# HEINZE MAGNETO CIRCUITS

FROM HEINZE INST. BK.



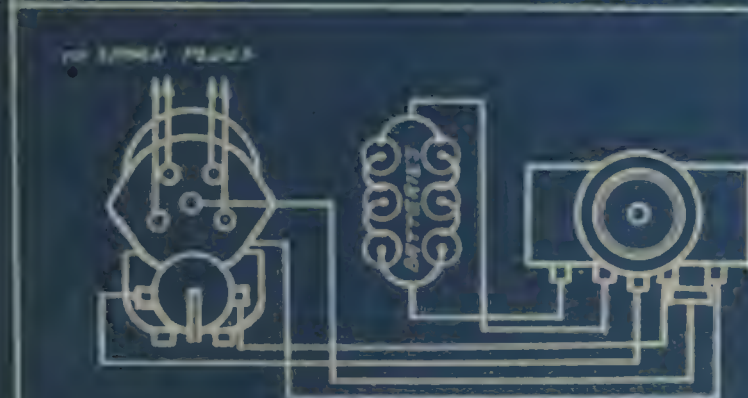
LT-5 MAGNETO

13-C COIL



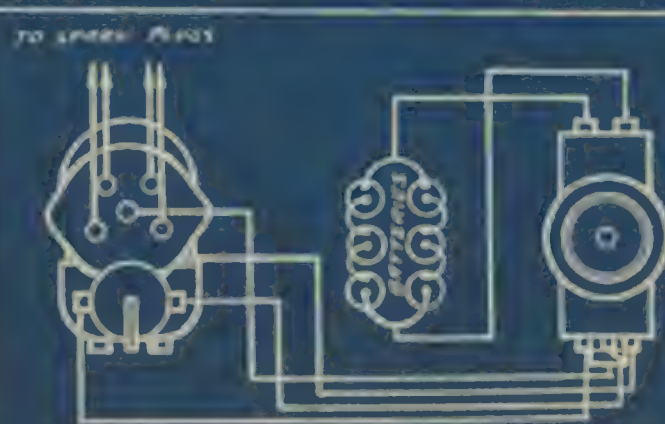
LT-5 MAGNETO

21-C COIL



LT-6 MAGNETO

17-C COIL

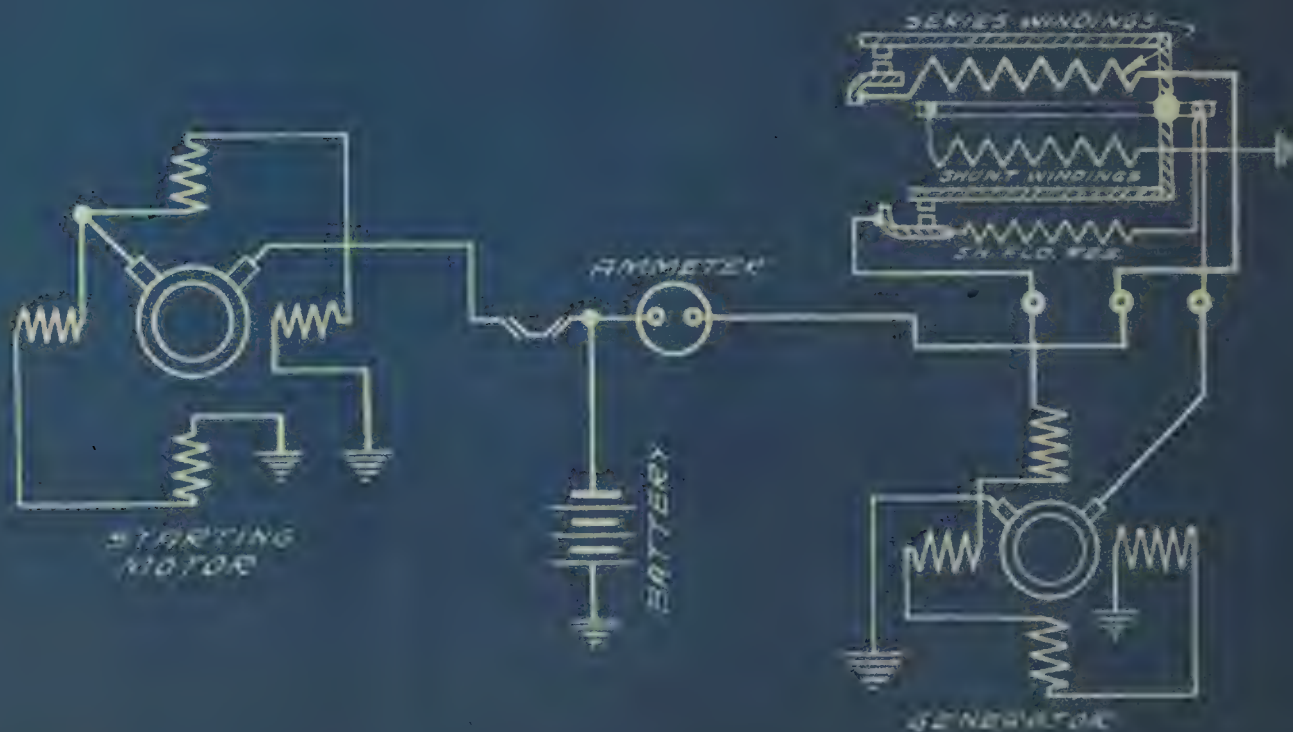


LT-6 MAGNETO

20-C COIL

# HEINZE-SPRINGFIELD INTERNAL CIRCUITS TWO UNIT SYSTEM

FROM SKETCH BY B. B. B.

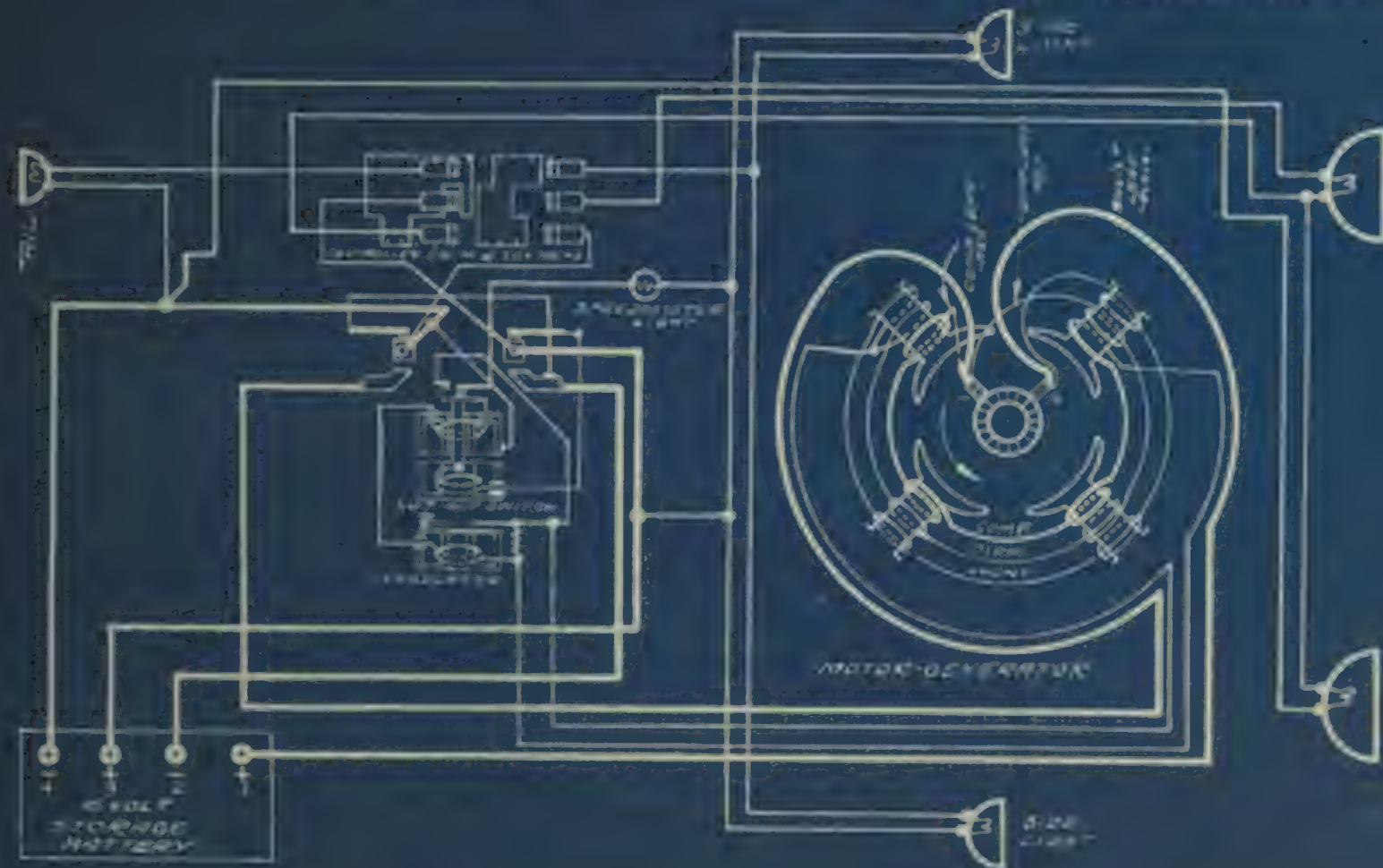


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New York, N. Y.



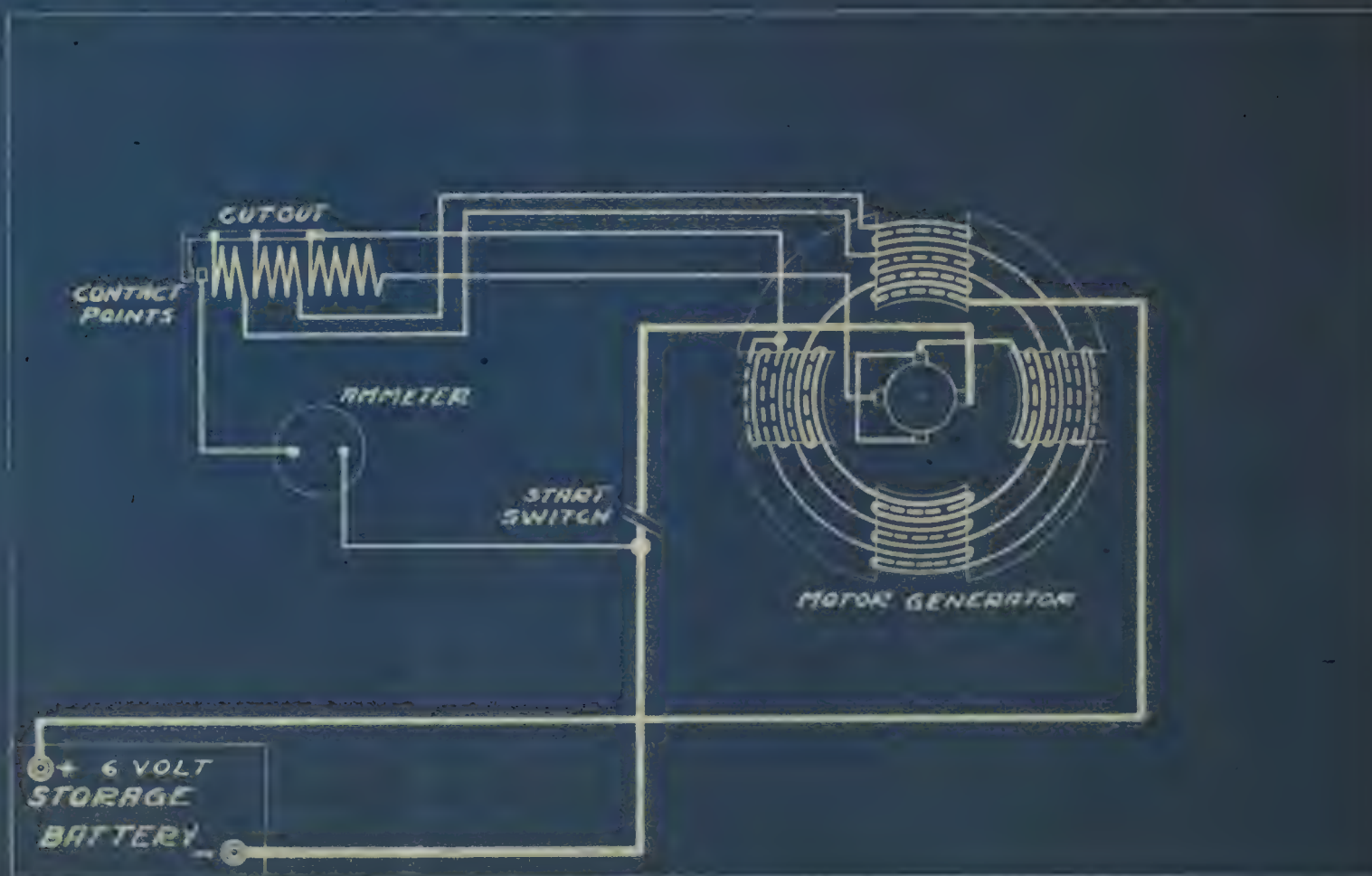
# JESCO INTERNAL CIRCUITS

FROM JESCO DIAGRAM M-774



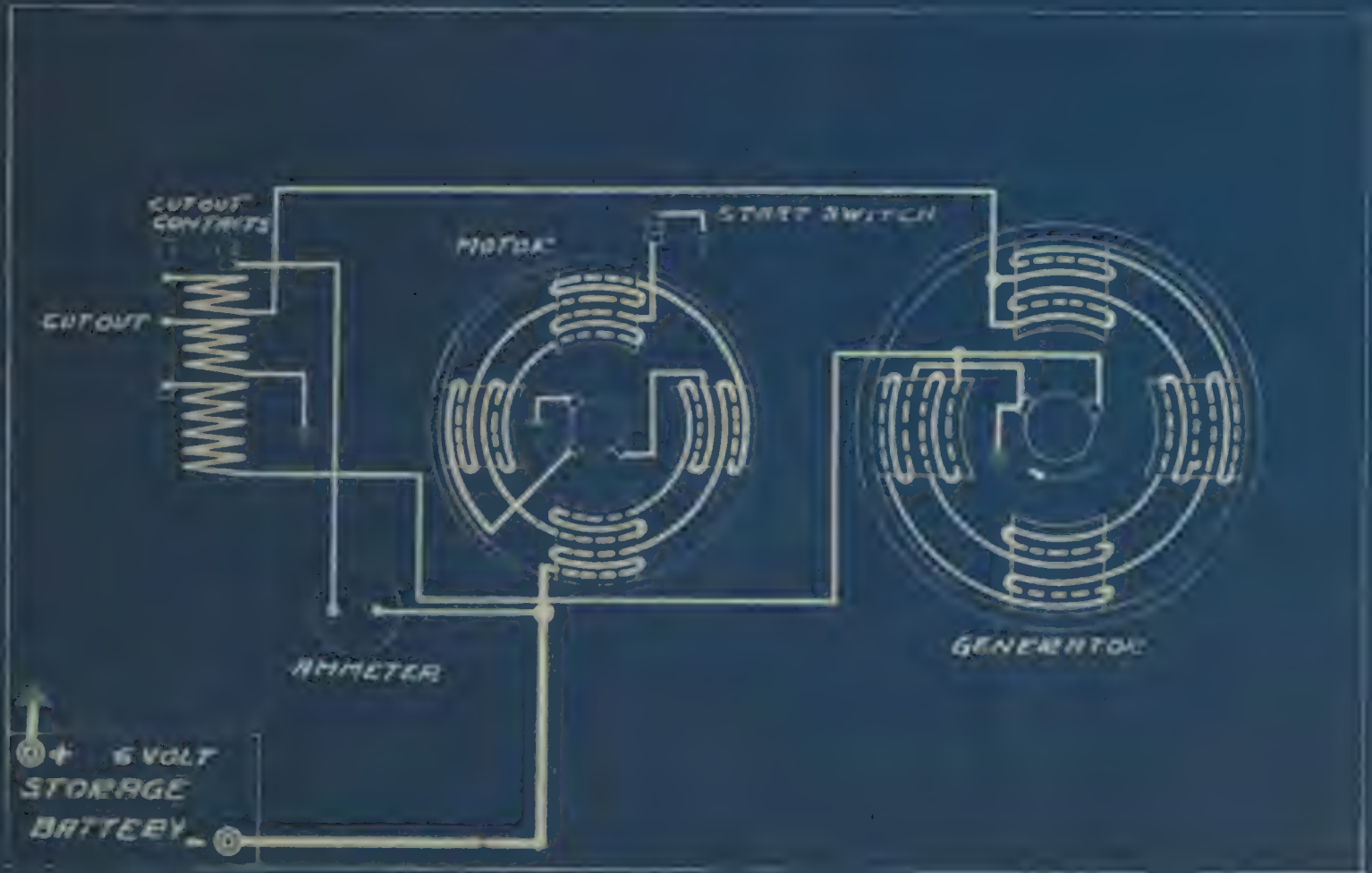
# JESCO INTERNAL CIRCUITS

FROM A. J. A. SKETCH



# JESCO INTERNAL CIRCUITS

FROM R.F.P. SKETCH



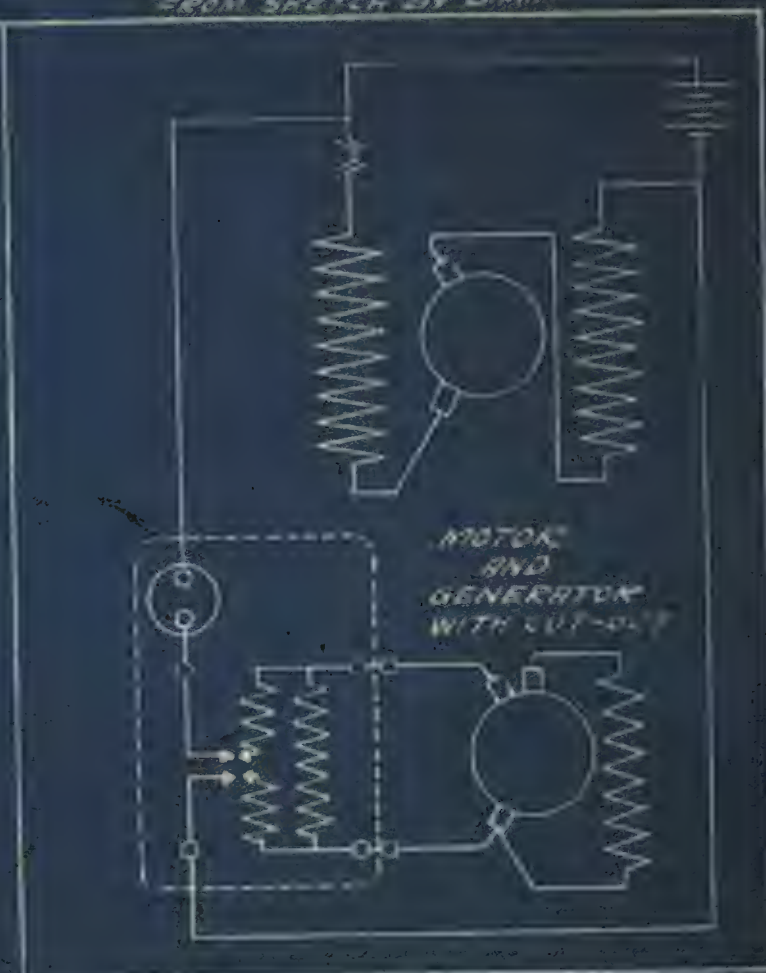
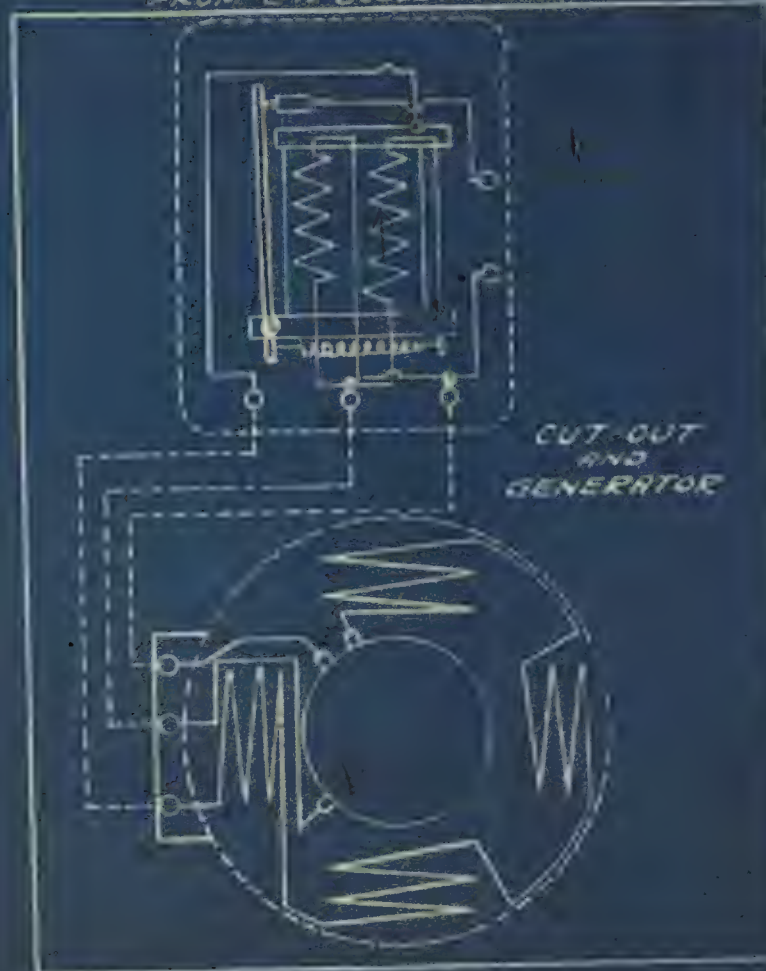
JESCO AUTOMOTIVE PRODUCTS CO. JACKSON, N. C.



# LEECE-NEVILLE INTERNAL CIRCUITS

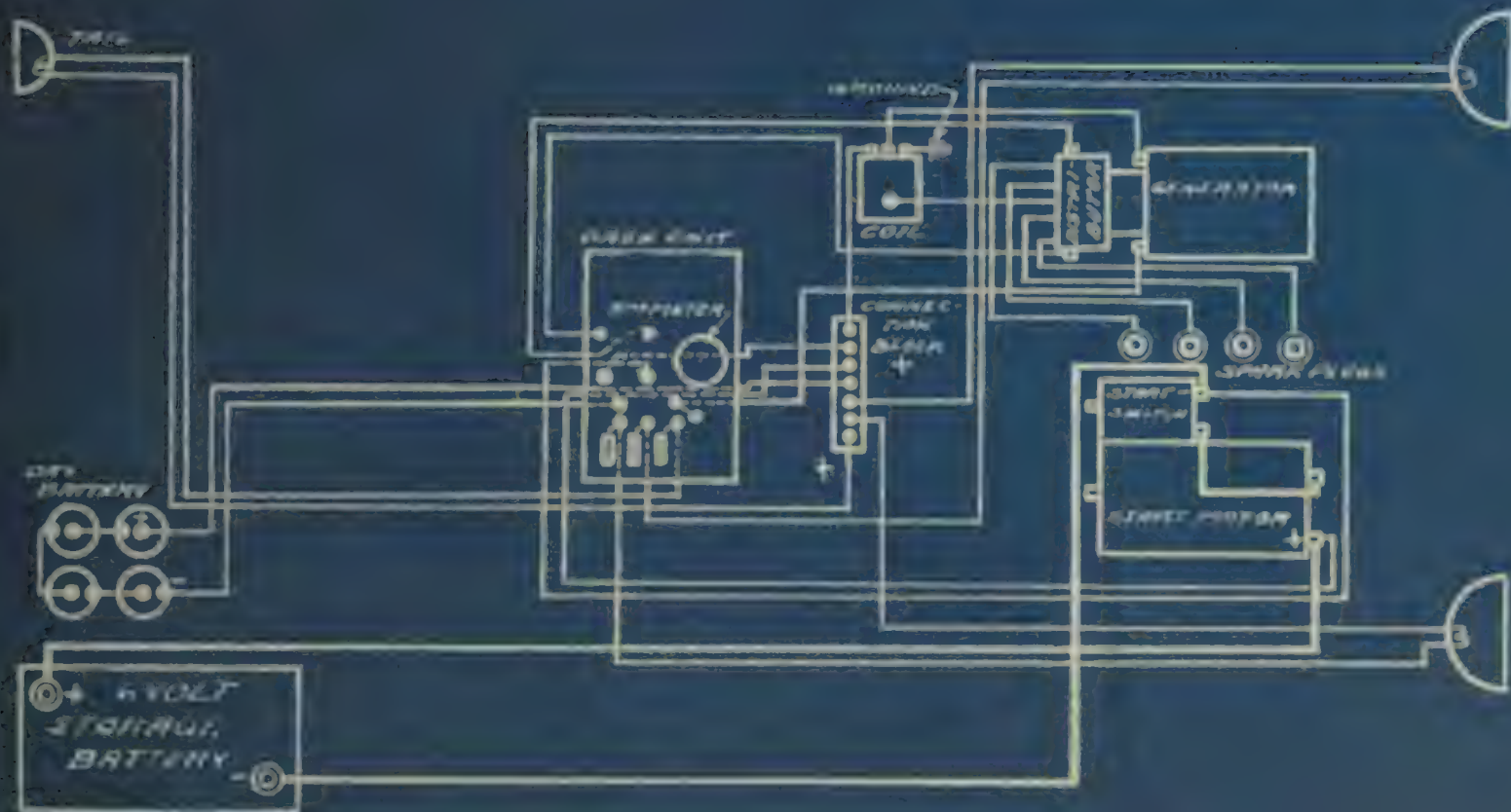
FROM L.N. BULLETIN NO. 42

FROM SKETCH BY D.M.P.

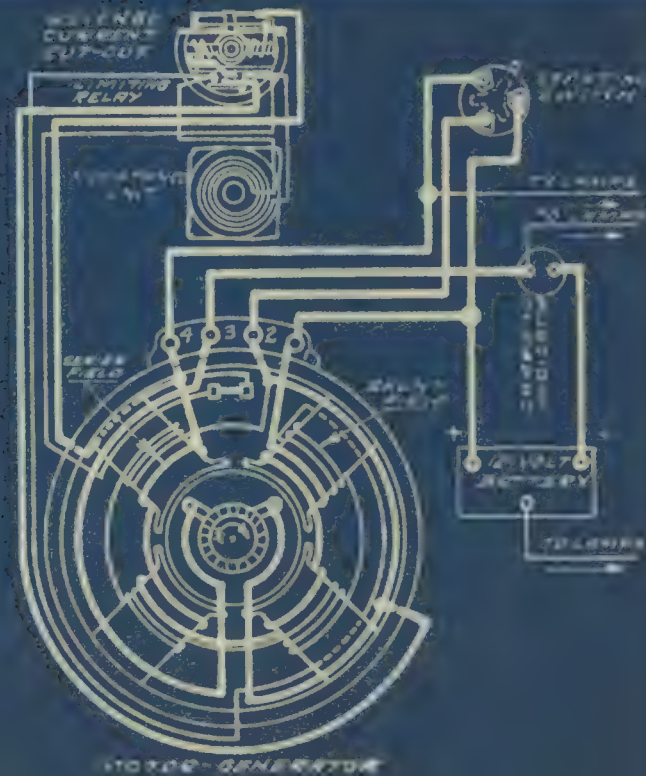


# NATIONAL WIRING SYSTEM STANDARD DIAGRAM

FROM NATIONAL DIAGRAM

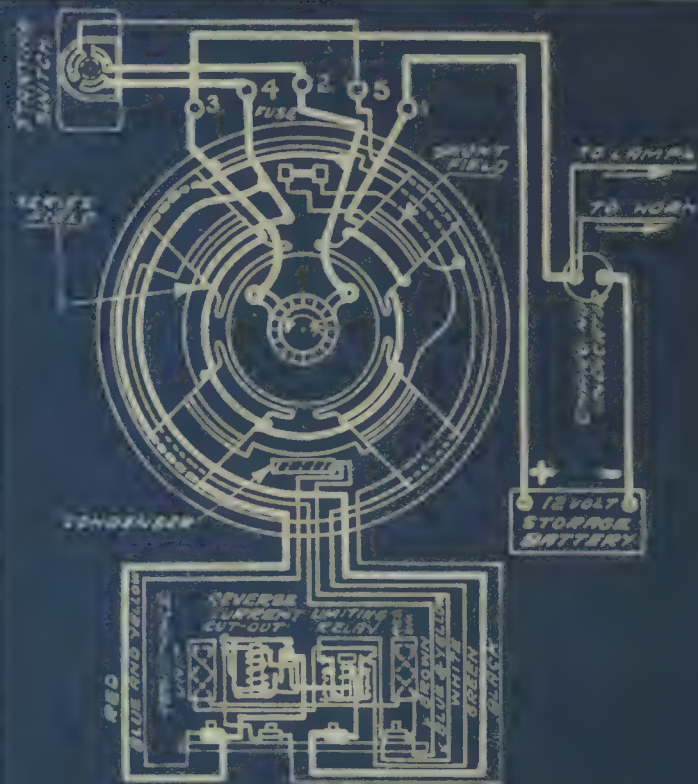


# NORTH EAST INTERNAL CIRCUITS



MODEL-A-SYSTEM

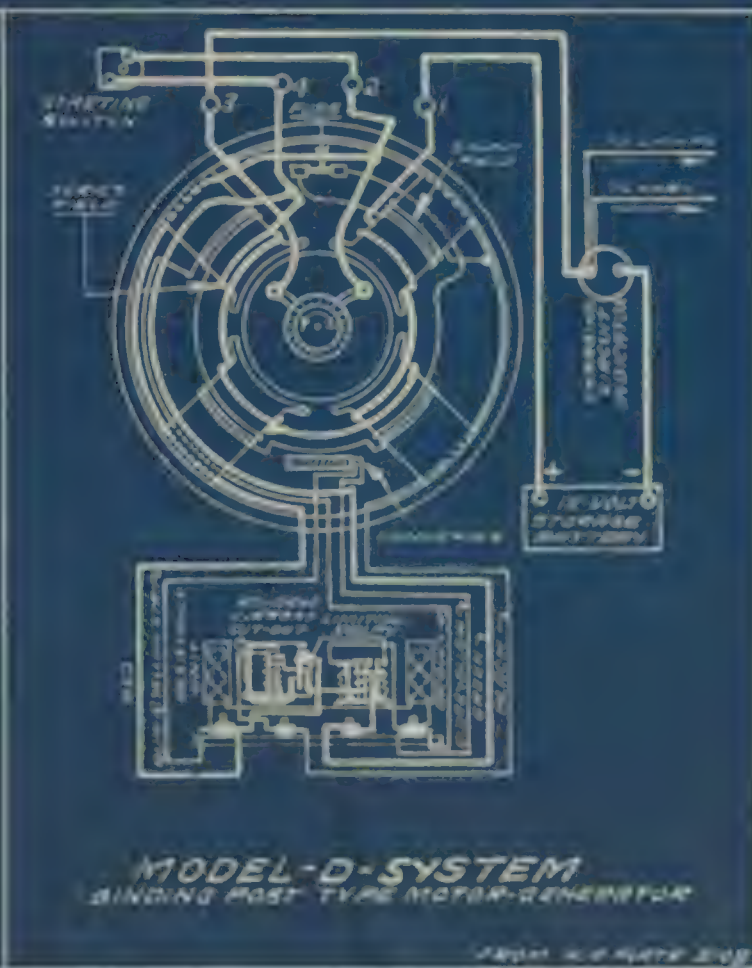
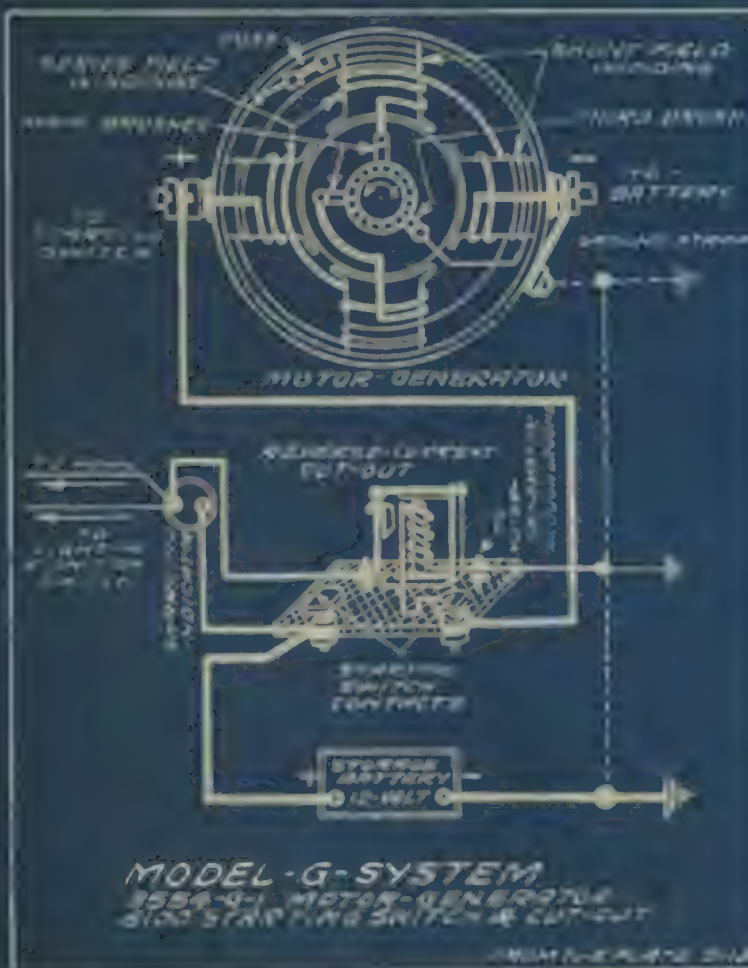
FOR MODEL-A SYSTEM WITH 110V AC GENERATOR



MODEL-B-SYSTEM



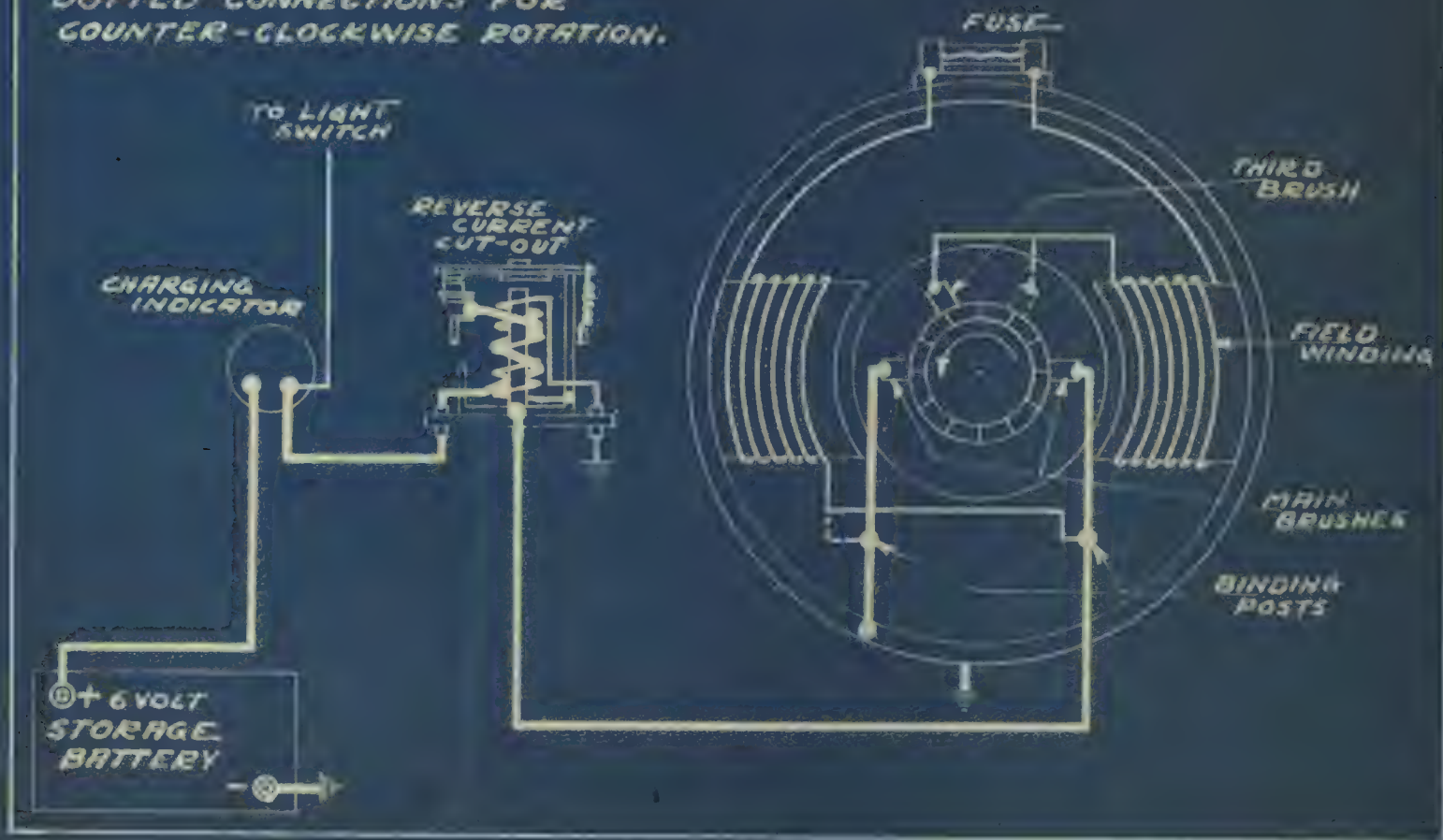
# NORTH EAST INTERNAL CIRCUITS



# NORTH EAST INTERNAL CIRCUIT GROUND RETURN SYSTEM

FROM MFRS. PLATE 3115

MODEL L GENERATOR. ROTATION CLOCKWISE  
CONSIDERED FROM DRIVE END.  
DOTTED CONNECTIONS FOR  
COUNTER-CLOCKWISE ROTATION.

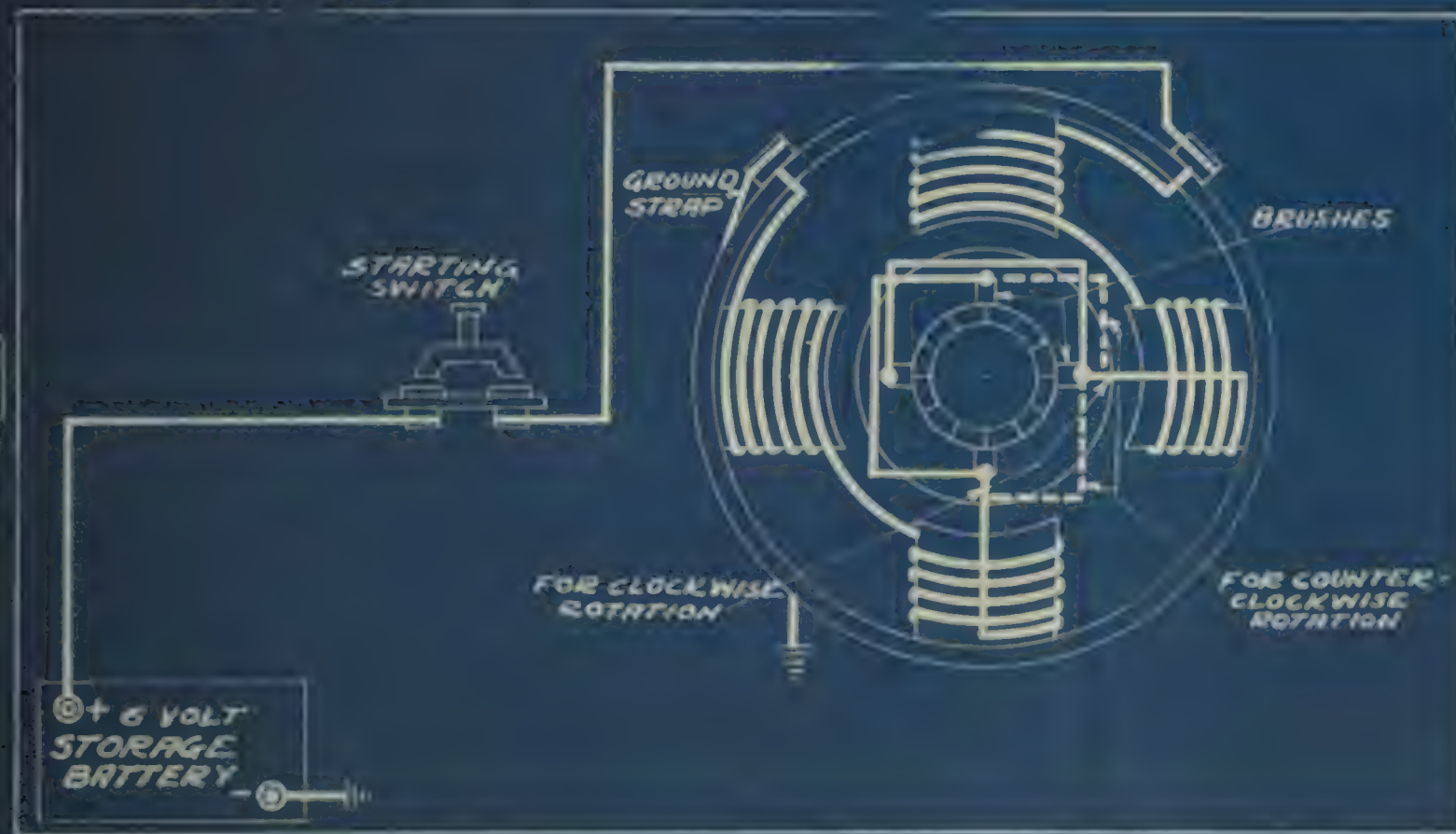


# NORTH EAST INTERNAL CIRCUIT

MODEL H K OR R STARTING MOTOR

FRONT VIEW, PLATE 5115

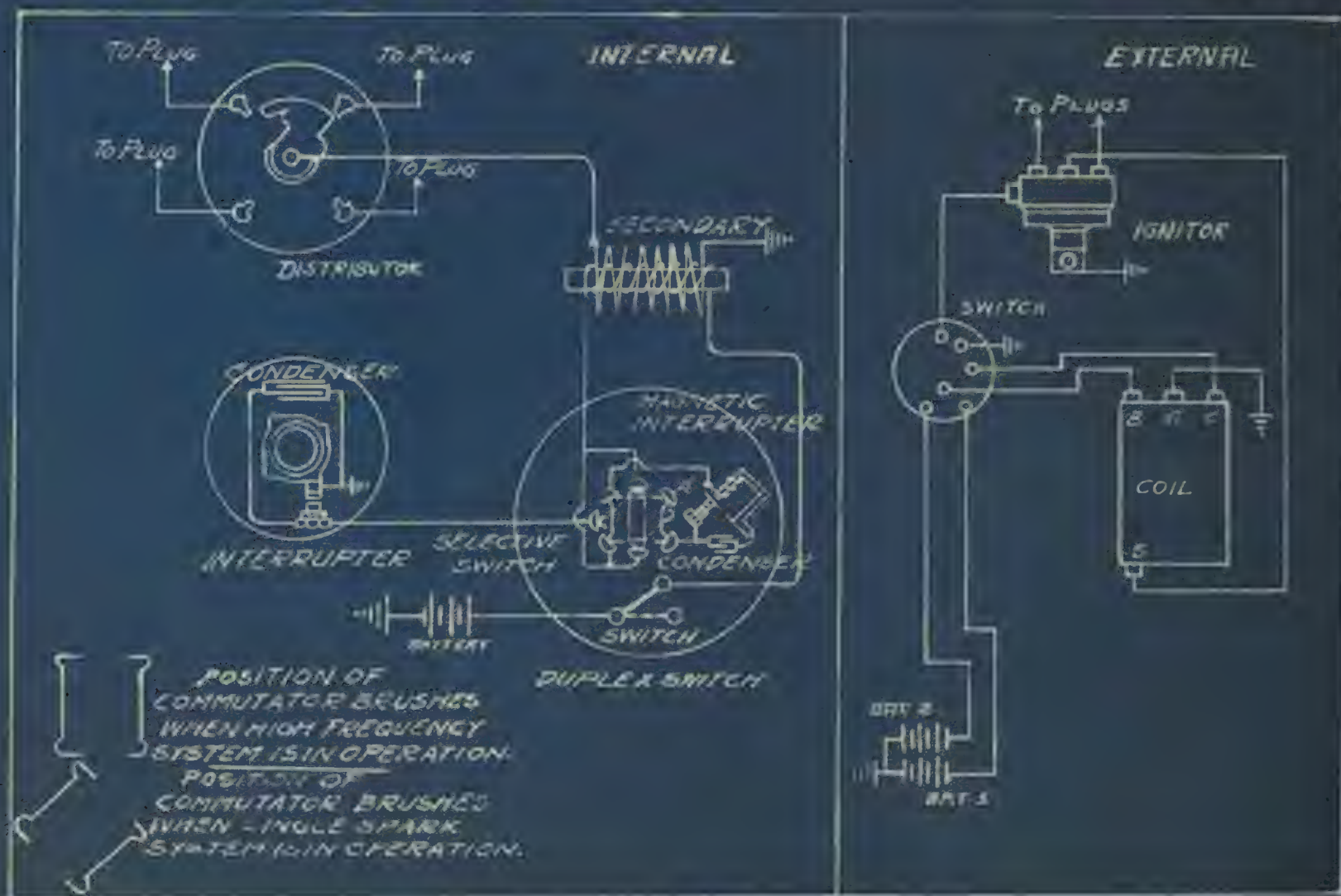
ROTATION CONSIDERED FROM  
DRIVE END.





# PHILBRIN DUPLEX IGNITION SYSTEM

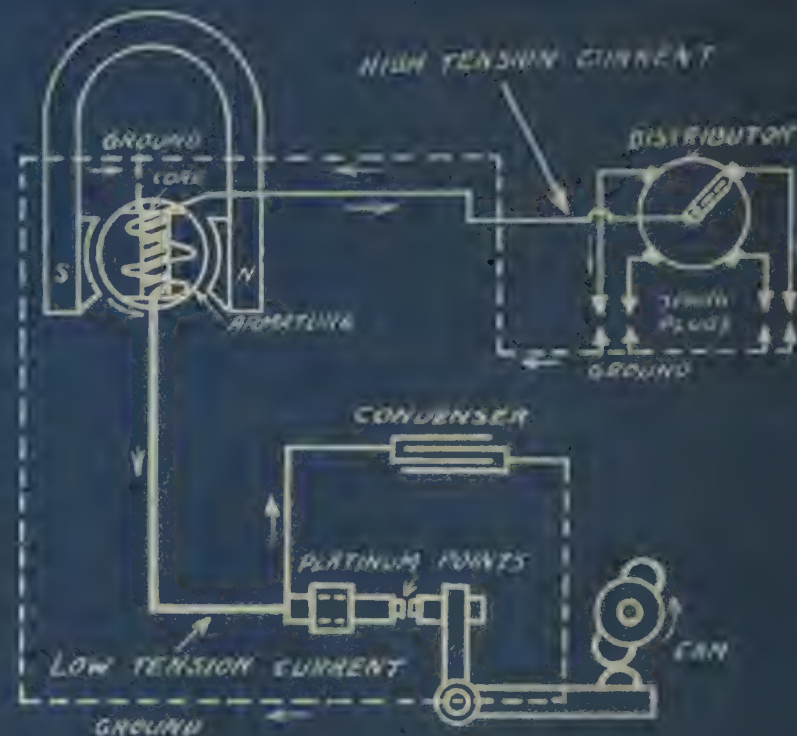
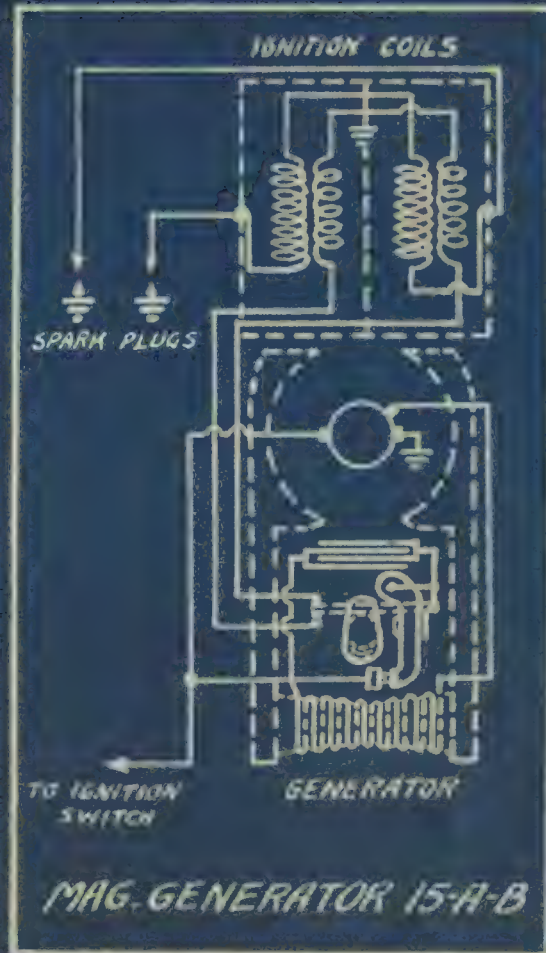
FROM MPNS B-1365





# REMY INTERNAL CIRCUITS

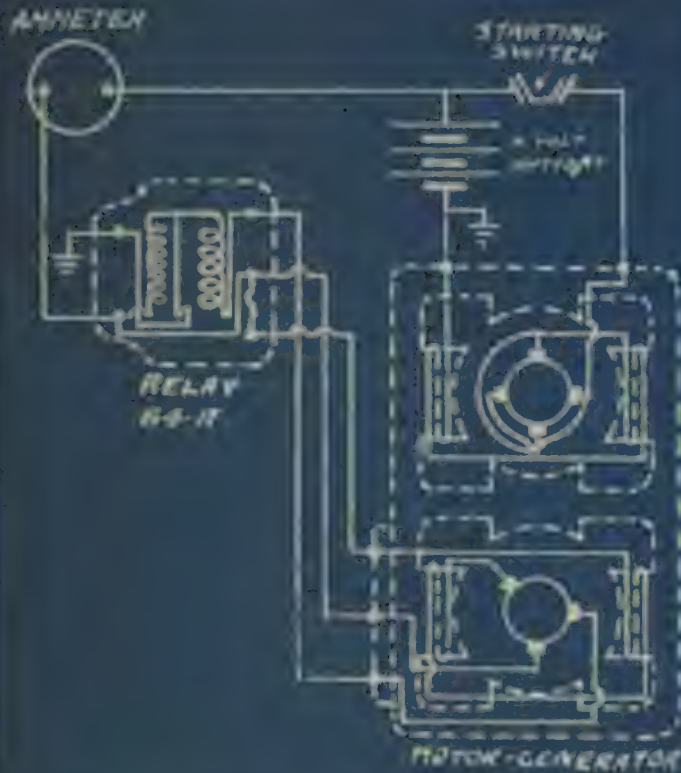
FROM REMY MANUAL



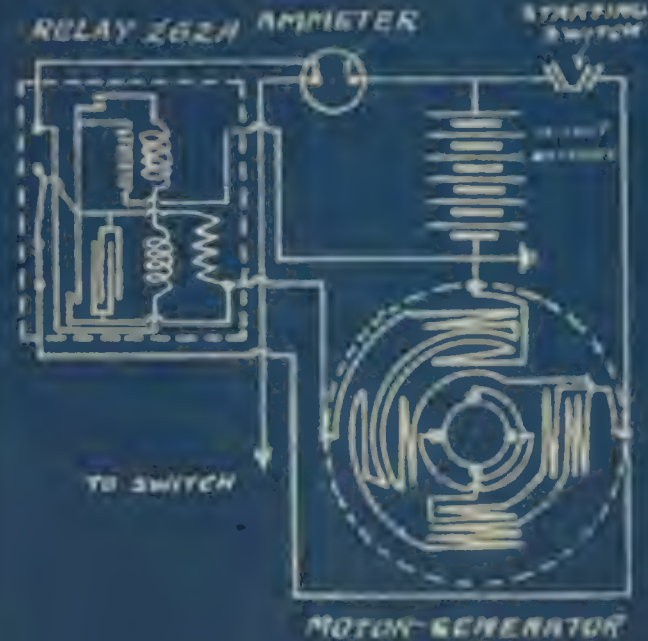


# REMY INTERNAL CIRCUITS

FROM REMY MANUAL



MOTOR-GENERATOR SL 3



MOTOR-GENERATOR 129 B

# REMY INTERNAL CIRCUITS

2011 12/14/2012



GENERATOR NO. 168 E



GENERATOR NO. 292 A



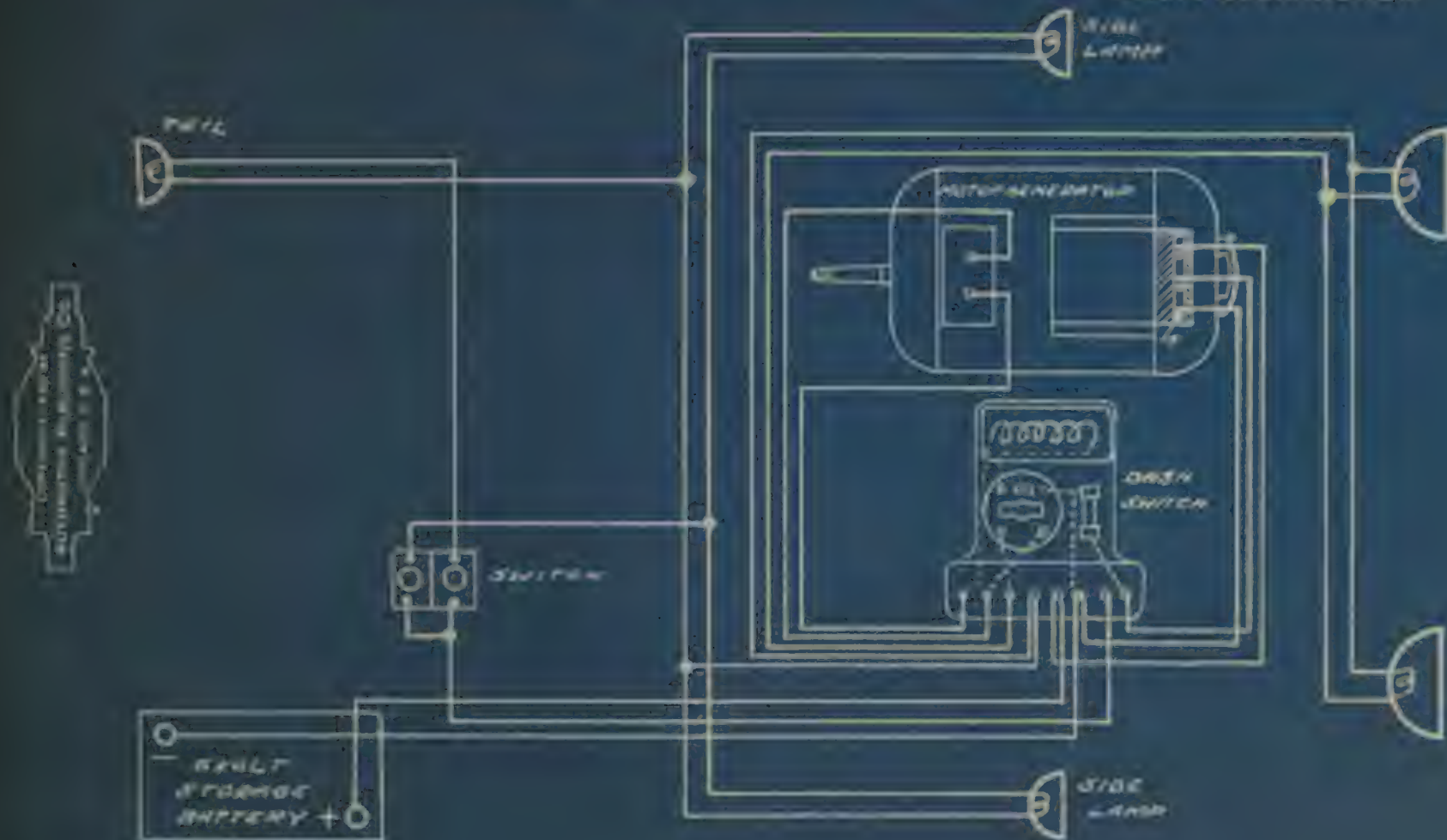
STARTING MOTOR NO. 292 A



GENERATOR NO. 245 B

# RUSHMORE STANDARD WIRING

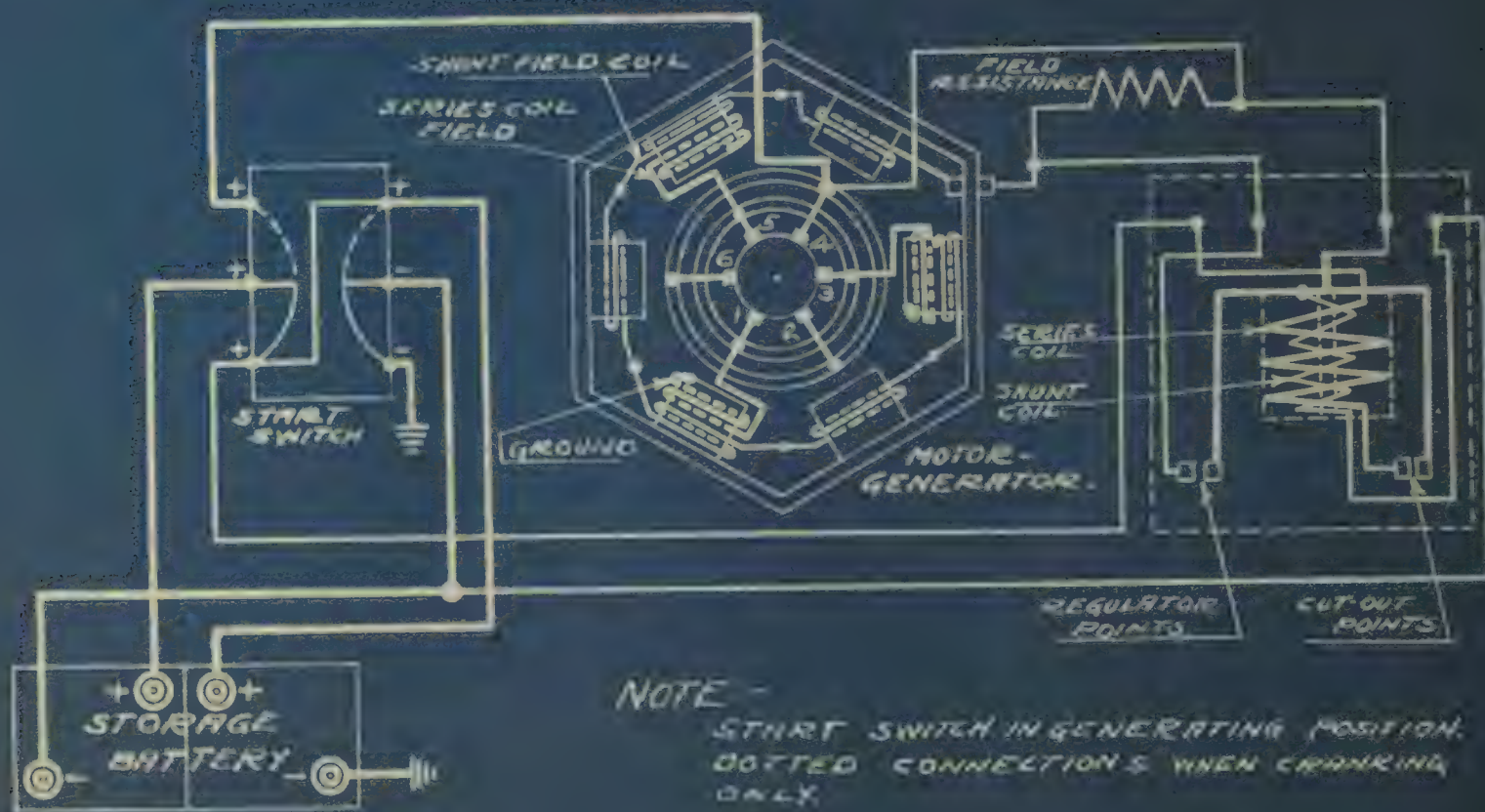
FROM RUSH INST. CO.





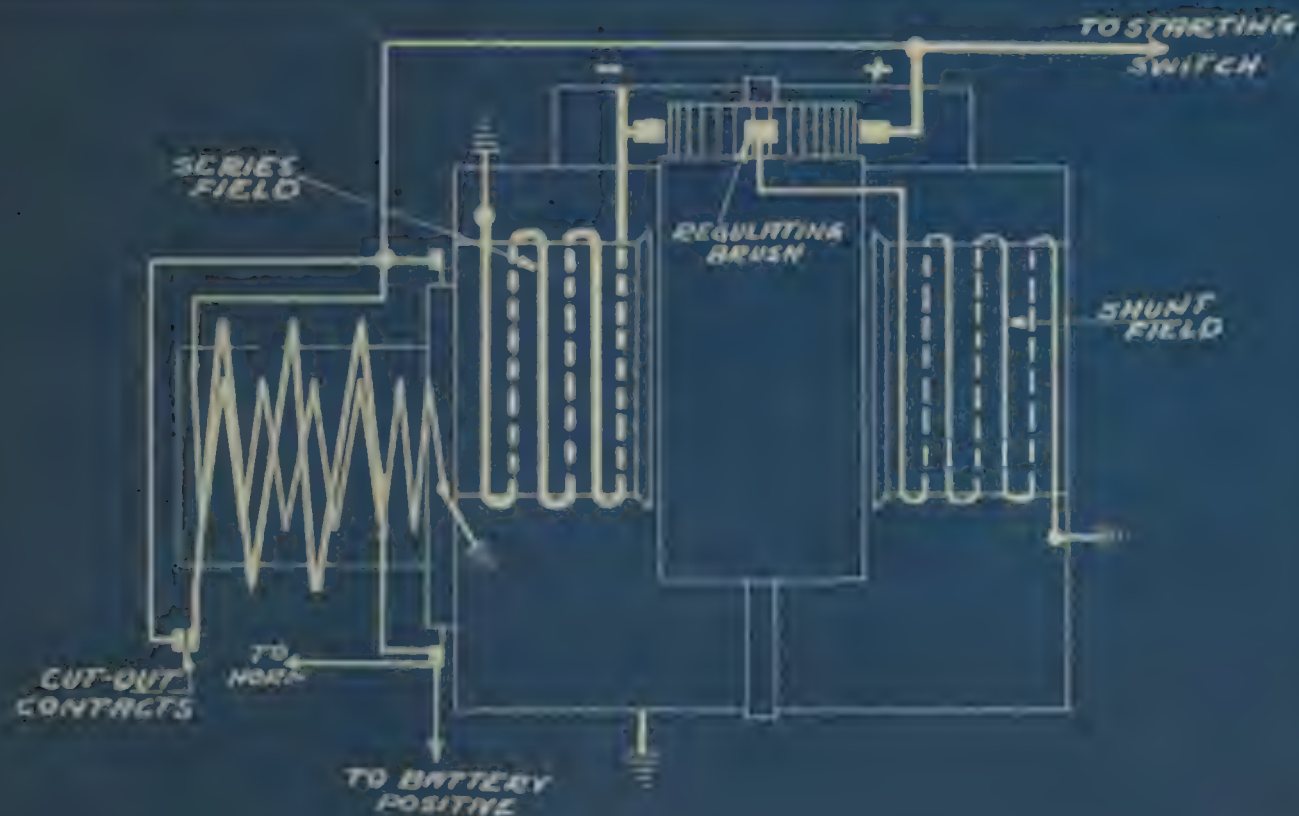
# SIMMS-HUFF INTERNAL CIRCUITS

FROM ENGINEER'S SKETCH



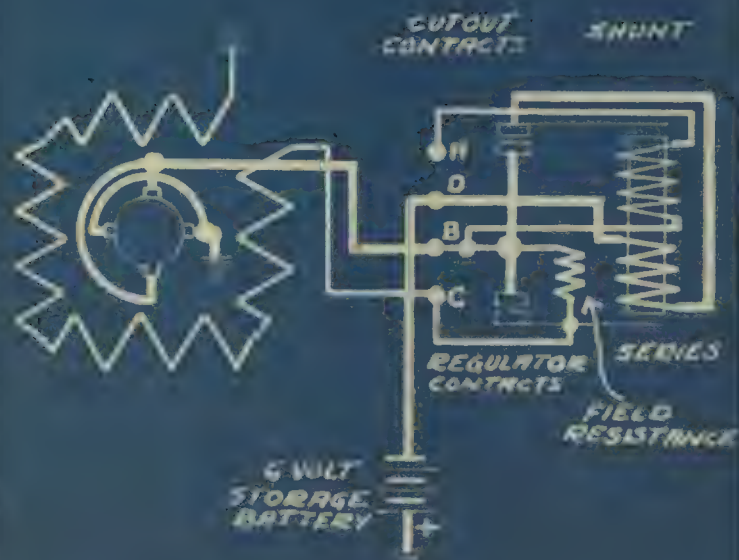
# SIMMS-HUFF 12 VOLT MOTOR-GENERATOR INTERNAL CIRCUIT

FROM HERS. DOWS



# INTERNAL CIRCUITS

FROM ENGINE'S SKETCH



**SPLITDORF**  
GENERATOR & REGULATOR

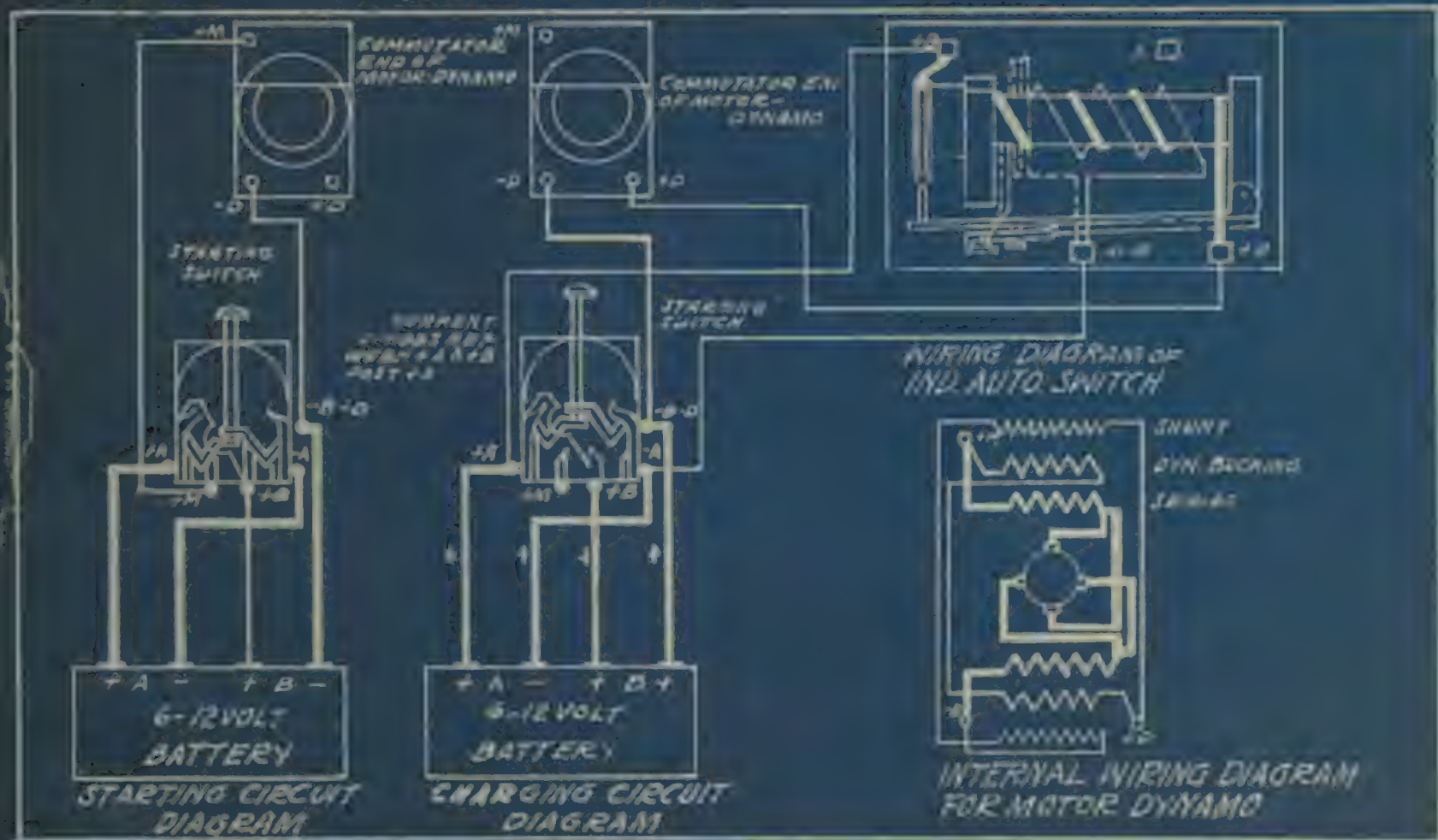


**DYNETO**  
MOTOR-GENERATOR MODEL L "B"

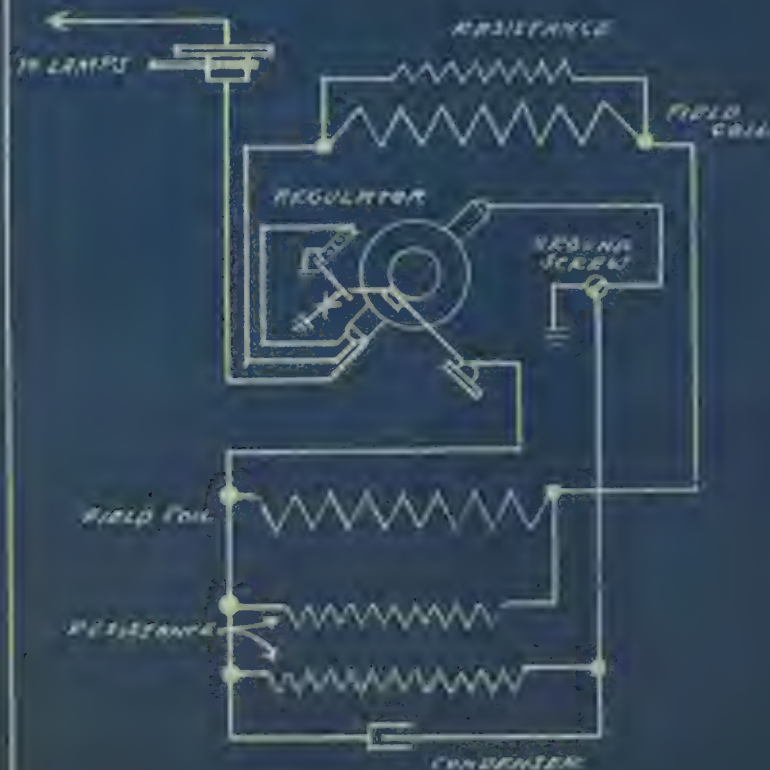


**SPLITDORF INTERNAL CIRCUIT**  
MOTOR-GENERATOR, SWITCH & CUT OUT

$\beta^2 2 \times 6$



# *SPLITDORF INTERNAL CIRCUIT TU-1* GENERATOR & REGULATOR



# *USA LIBERTY IGN. 1919-1920* AVIATION CIRCUIT DIAGRAM FROM REPAIR INSTRUCTIONS



DESIGNED BY  
AUGUSTINE F. FULTON  
Copyright 1920 by  
AUGUSTINE F. FULTON

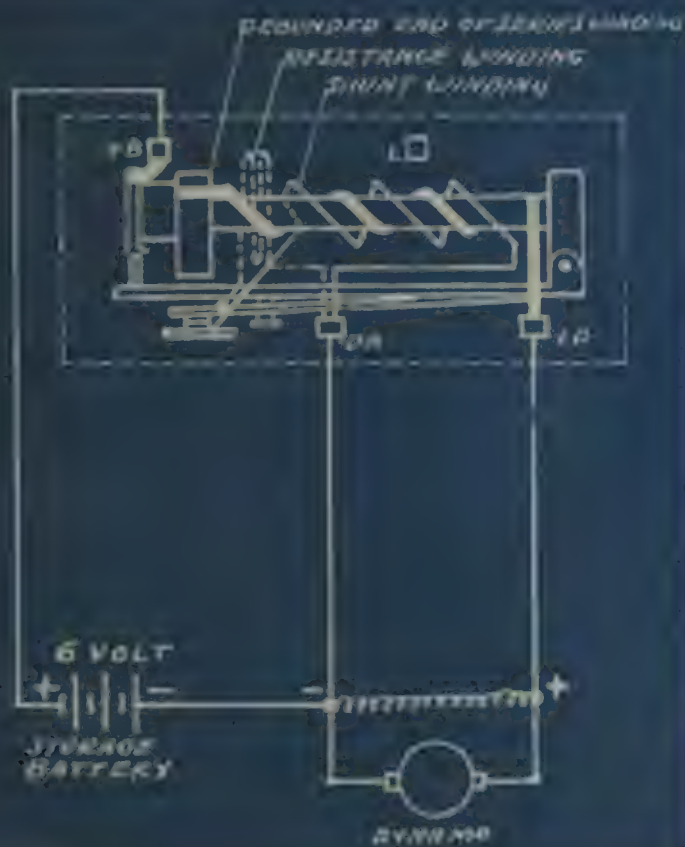
# SPLITDORF-APELCO INTERNAL CIRCUITS

GENERATOR WITH CUT OUT

FRONTIER 312 D-382

GENERATOR WITH REGULATOR CONNECTIONS

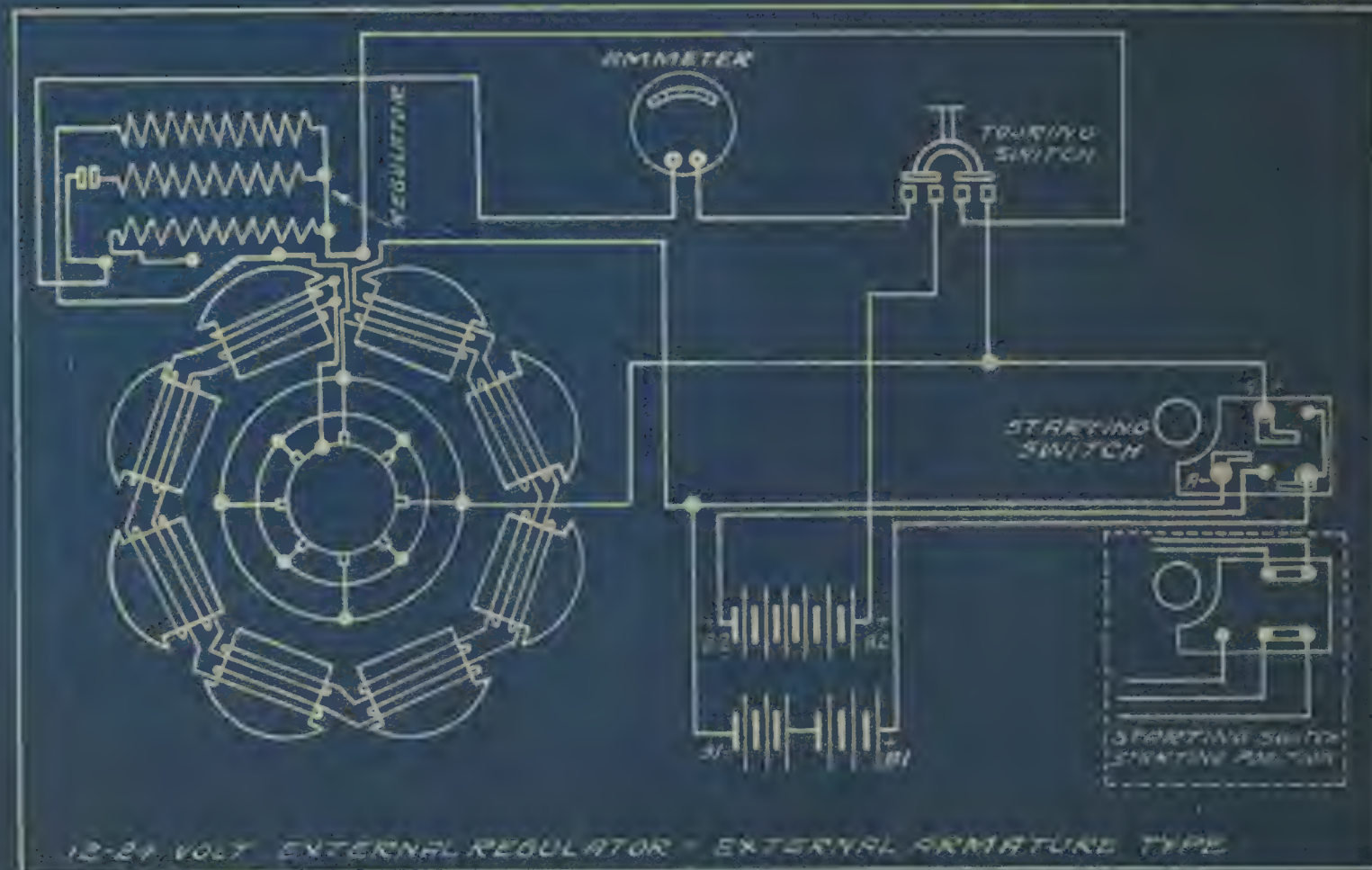
FRONTIER 312 D-382





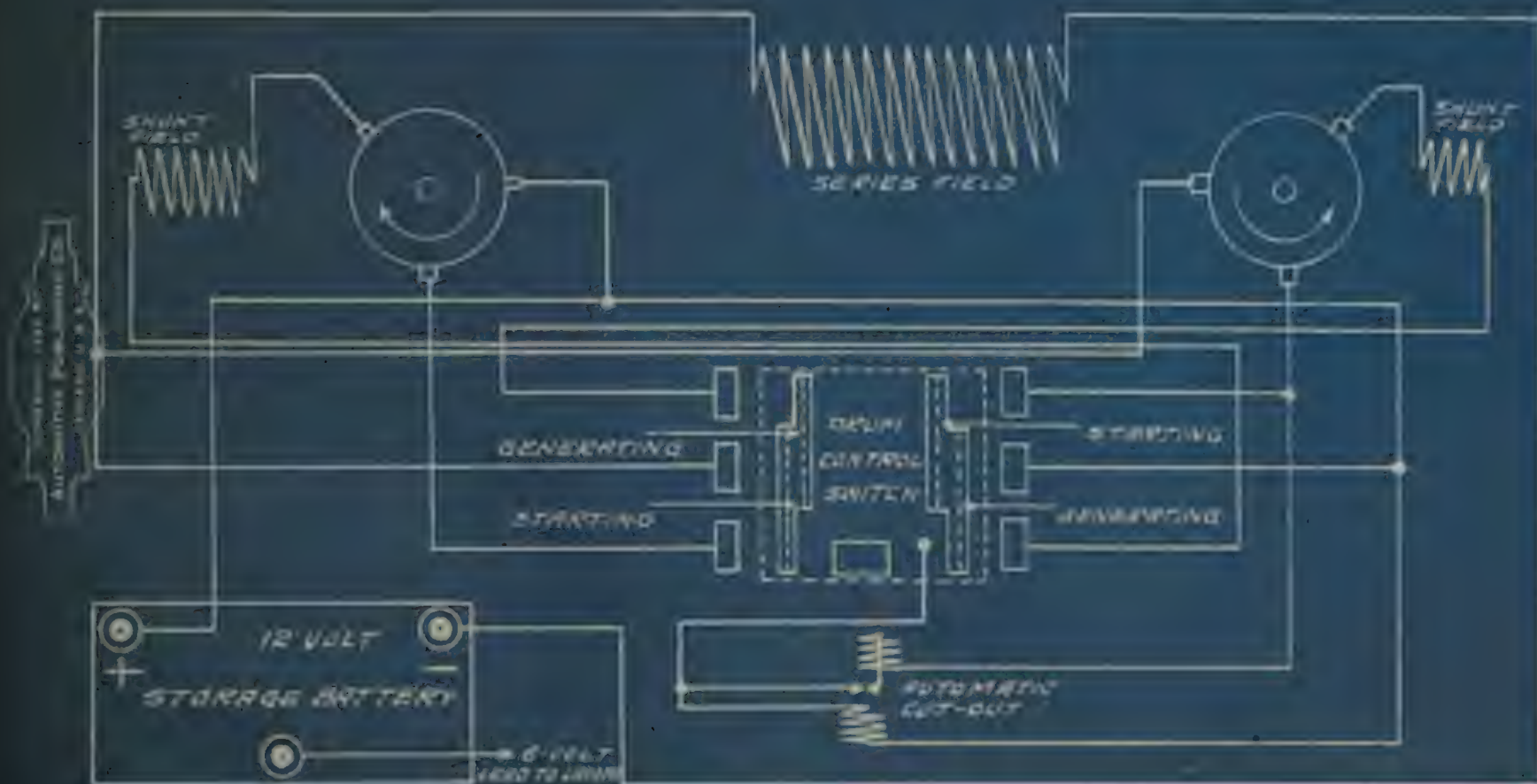
# U.S.L. INTERNAL CIRCUITS

FROM SKETCH BY DMP



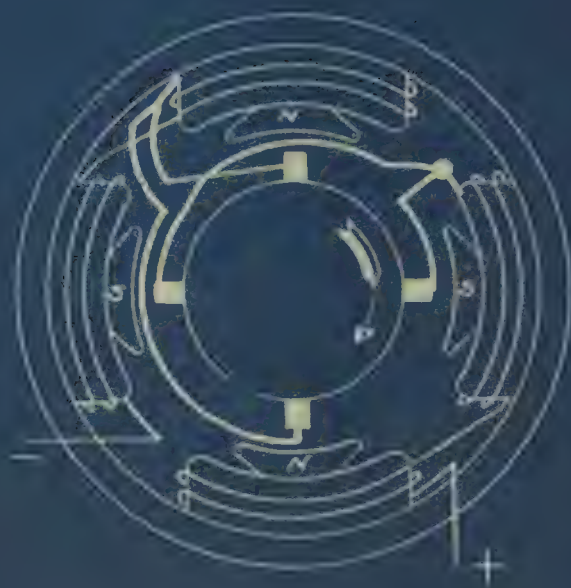
# WAGNER INTERNAL CIRCUITS

12 VOLT SINGLE UNIT MOTOR-GENERATOR-EARLY MODEL  
FROM SKETCH BY R.R.

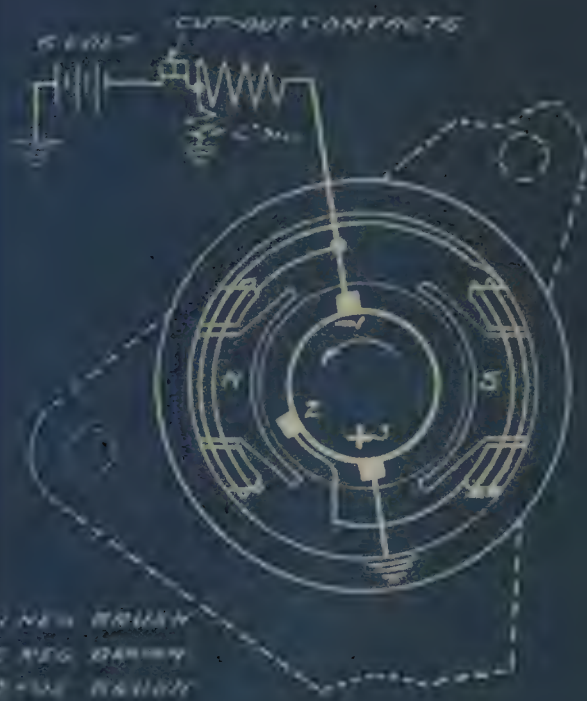


# WAGNER INTERNAL CIRCUITS

FROM MFRS. DRS. 3357-3360



MODEL 35-F MOTOR



1. POS. BRUSH  
2. NEG. BRUSH  
3. POS. BRUSH

MODEL 45-T GENERATOR

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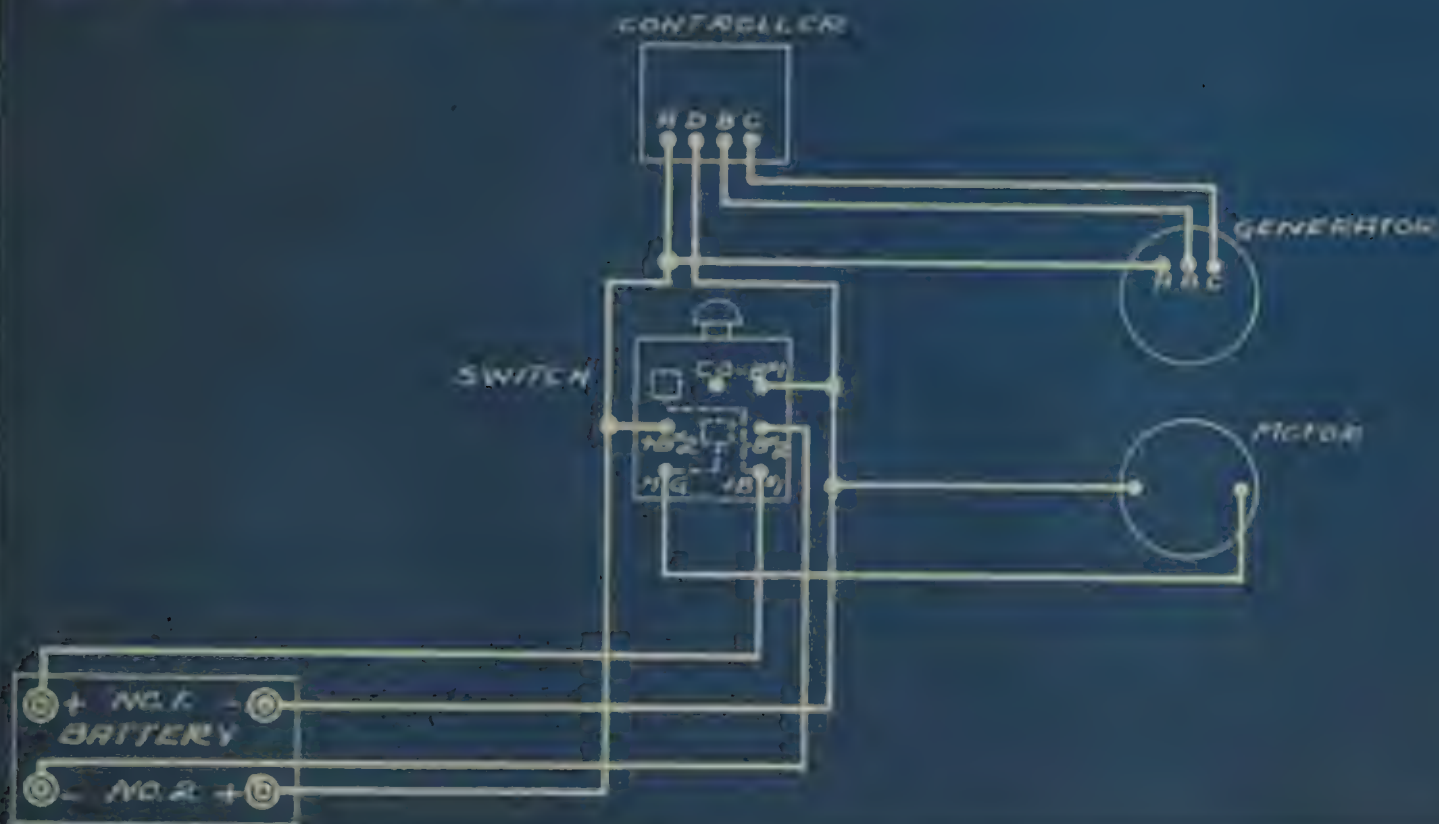


# WAGNER WARD-LEONARD

STARTING SYSTEM TWO UNIT 6-12 VOLT

FROM MOTOR B.P.

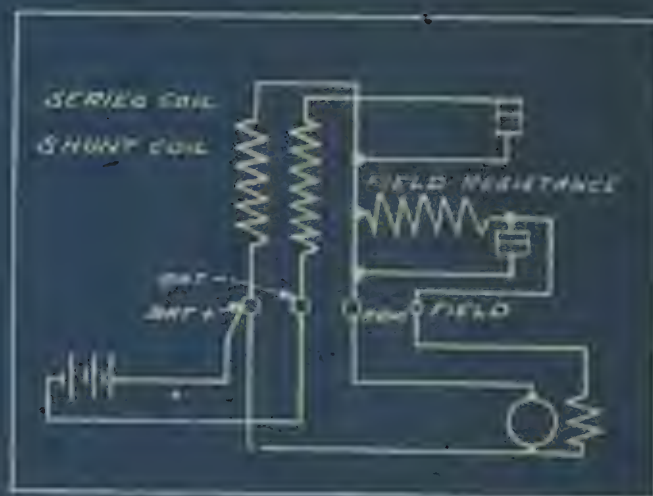
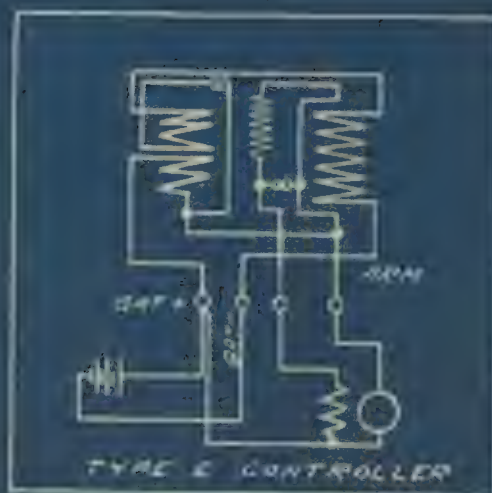
AS INSTALLED ON VARIOUS  
MOTOR CARS AND TRUCKS  
NOT ORIGINALLY EQUIPPED.



# WARD-LEONARD INTERNAL CIRCUITS

FROM WARD-LEONARD INSTRUMENT

## VOLTAGE REGULATORS

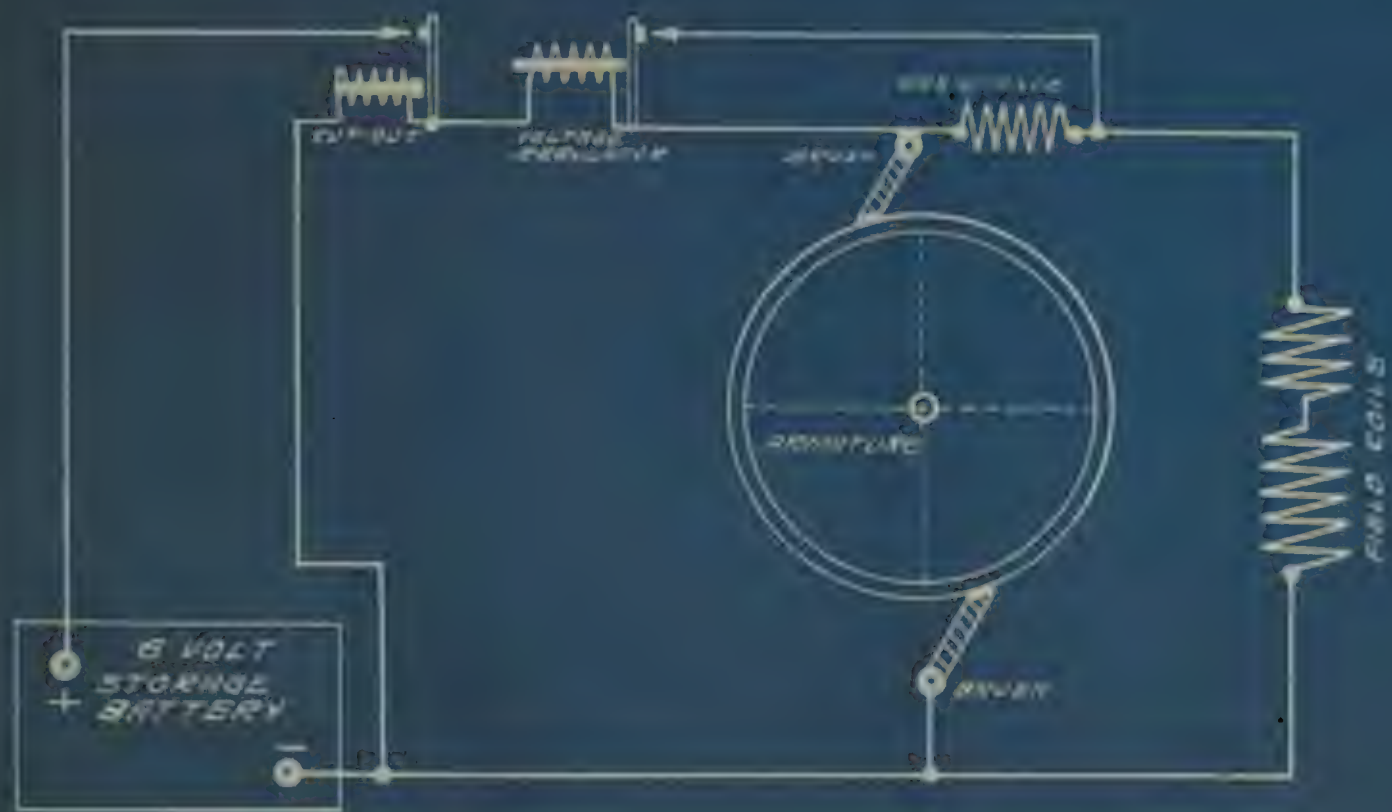


INTERNAL CIRCUITS OF TYPE CC CONTROLLER SAME AS TYPE CC  
WITH RESISTANCE UNIT MOUNTED ON TOP

# WARD-LEONARD INTERNAL CIRCUITS

## GENERATOR WITH REGULATOR CUT-OUT

Circuit Diagram No. 30, 307, 1

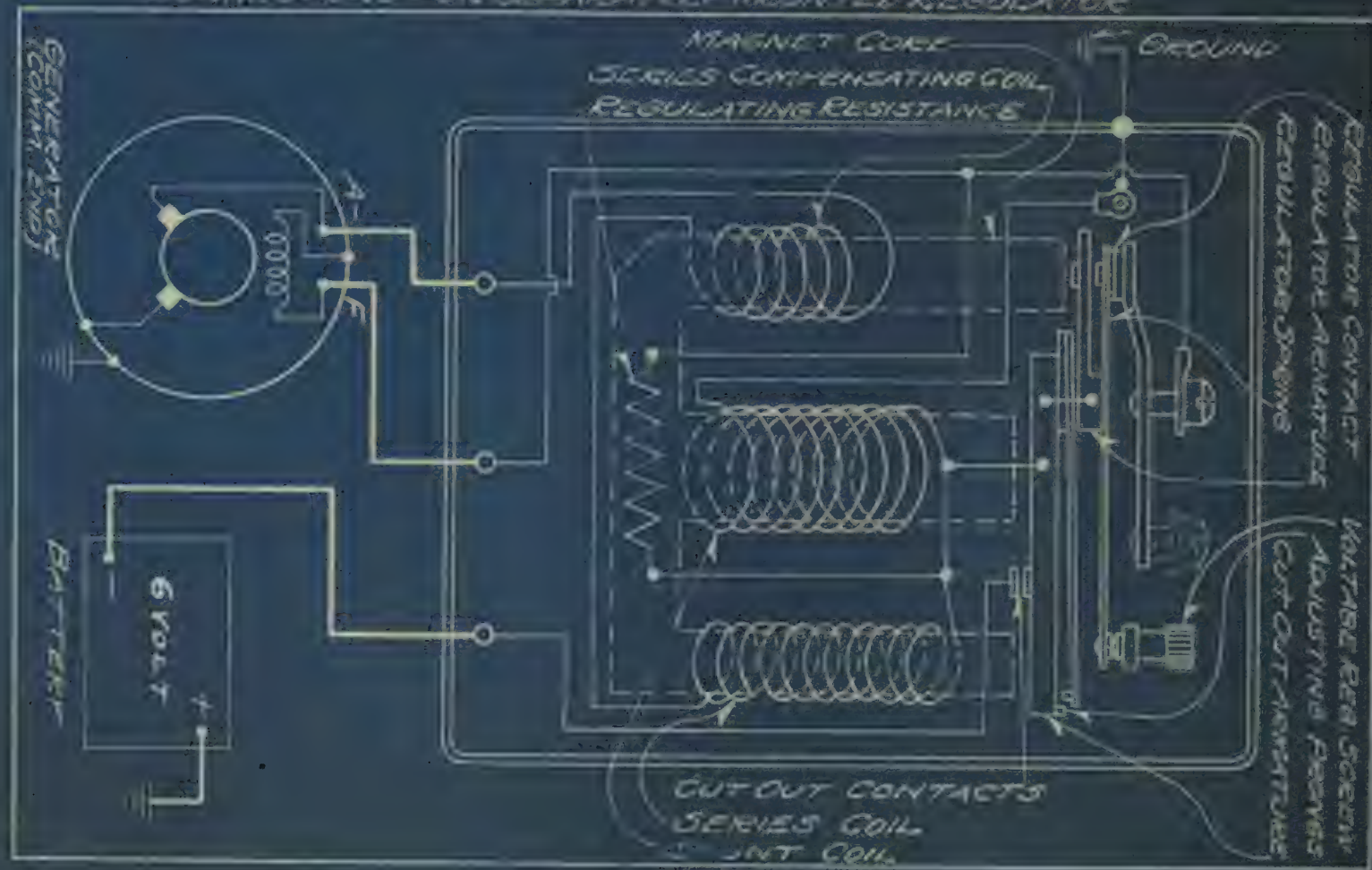




# WESTINGHOUSE INTERNAL CIRCUITS

TYPE NR. 8 (7500)

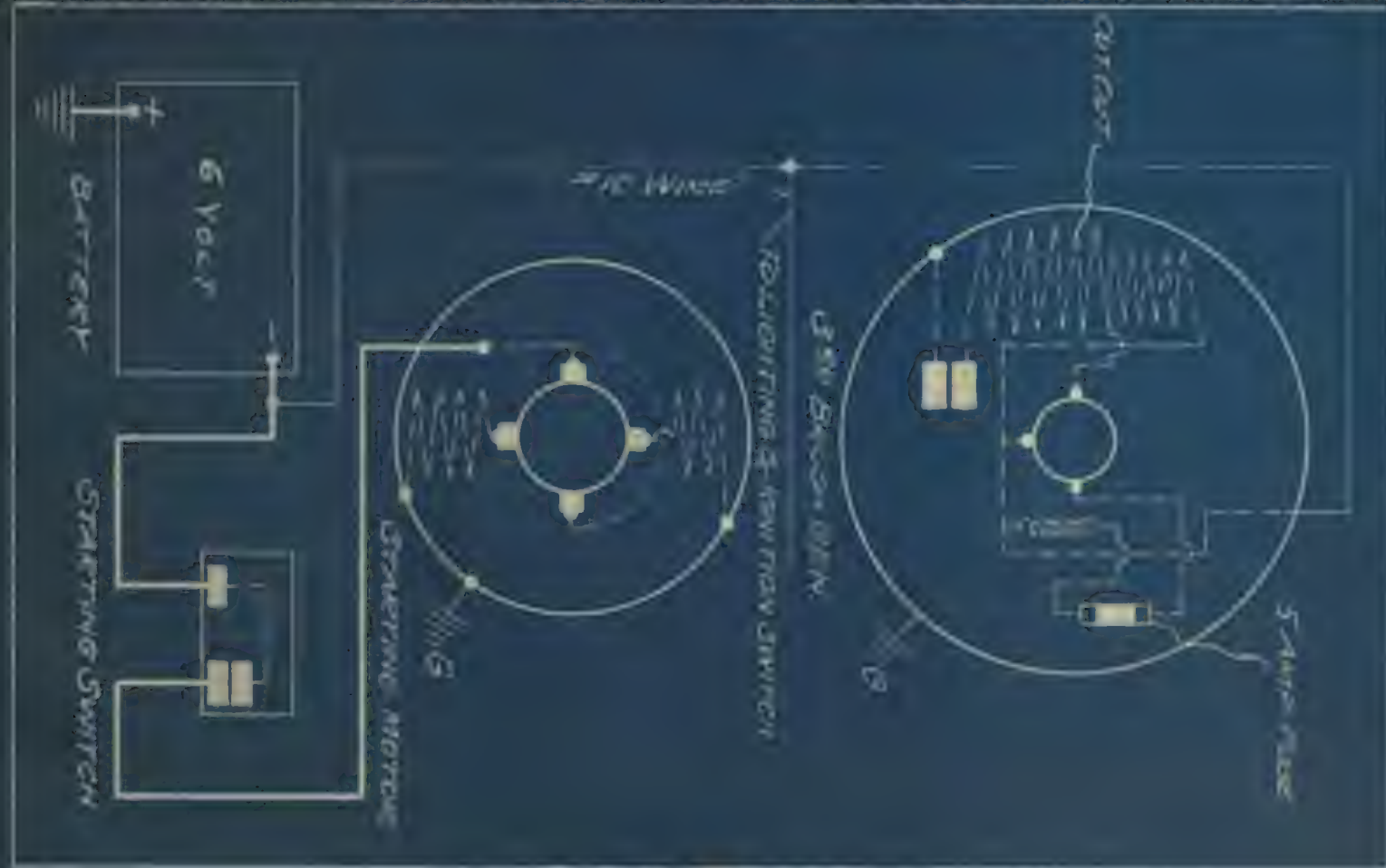
CONNECTIONS FOR SEPARATELY MOUNTED REGULATOR



# WESTINGHOUSE INTERNAL CIRCUITS

Copyright 1914 by Westinghouse Electric & Manufacturing Co.

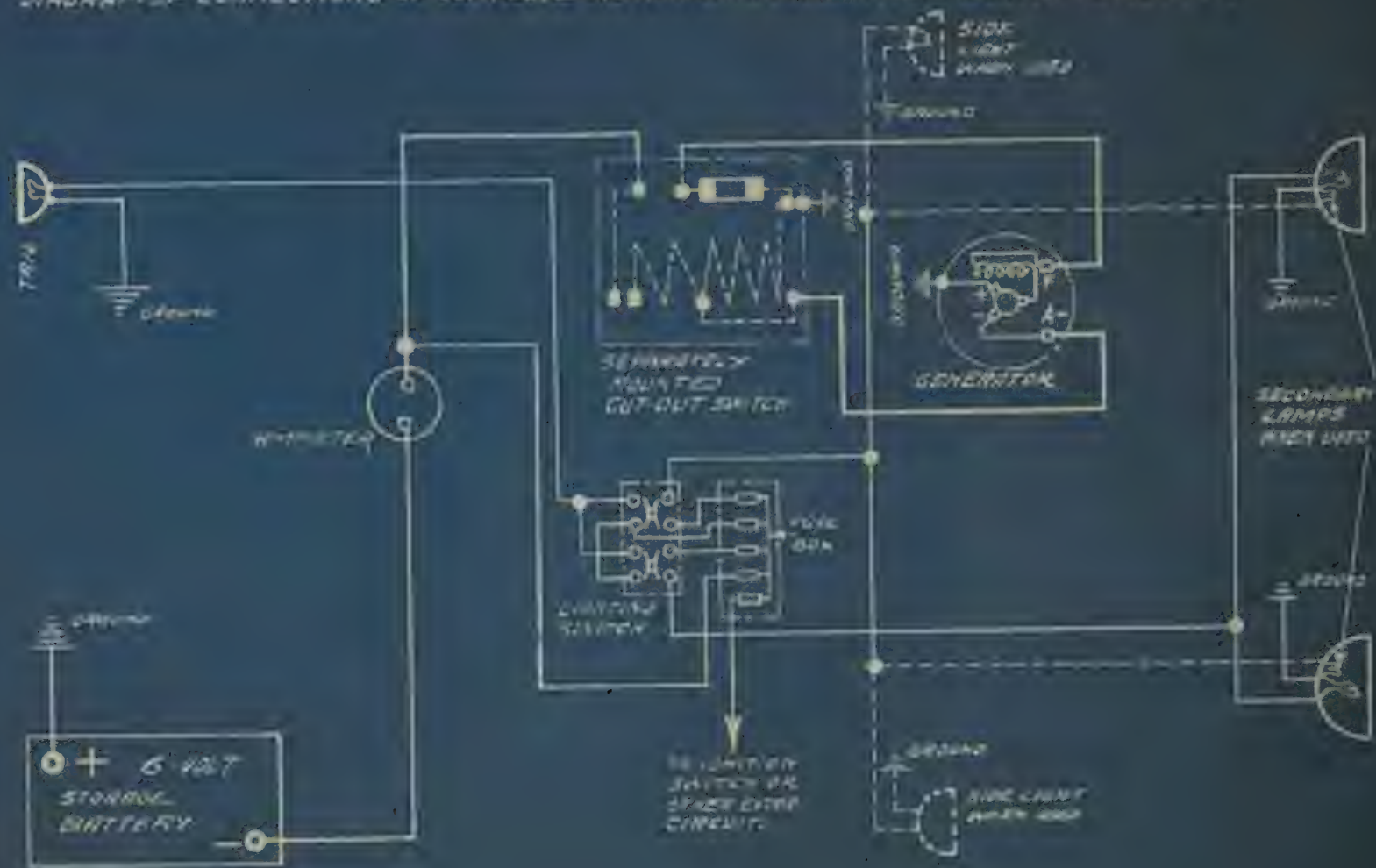
CONNECTIONS FOR 3<sup>RD</sup> BRUSH-SENSITIVE CONTAINED CUT-OUT-STARTING MOTOR-STARTING CIRCUIT



# WESTINGHOUSE STANDARD WIRING

FROM WESTING. BK. 5166

DIAGRAM OF CONNECTIONS OF COMPLETE SYSTEM WITH SEPARATELY MOUNTED REGULATOR.

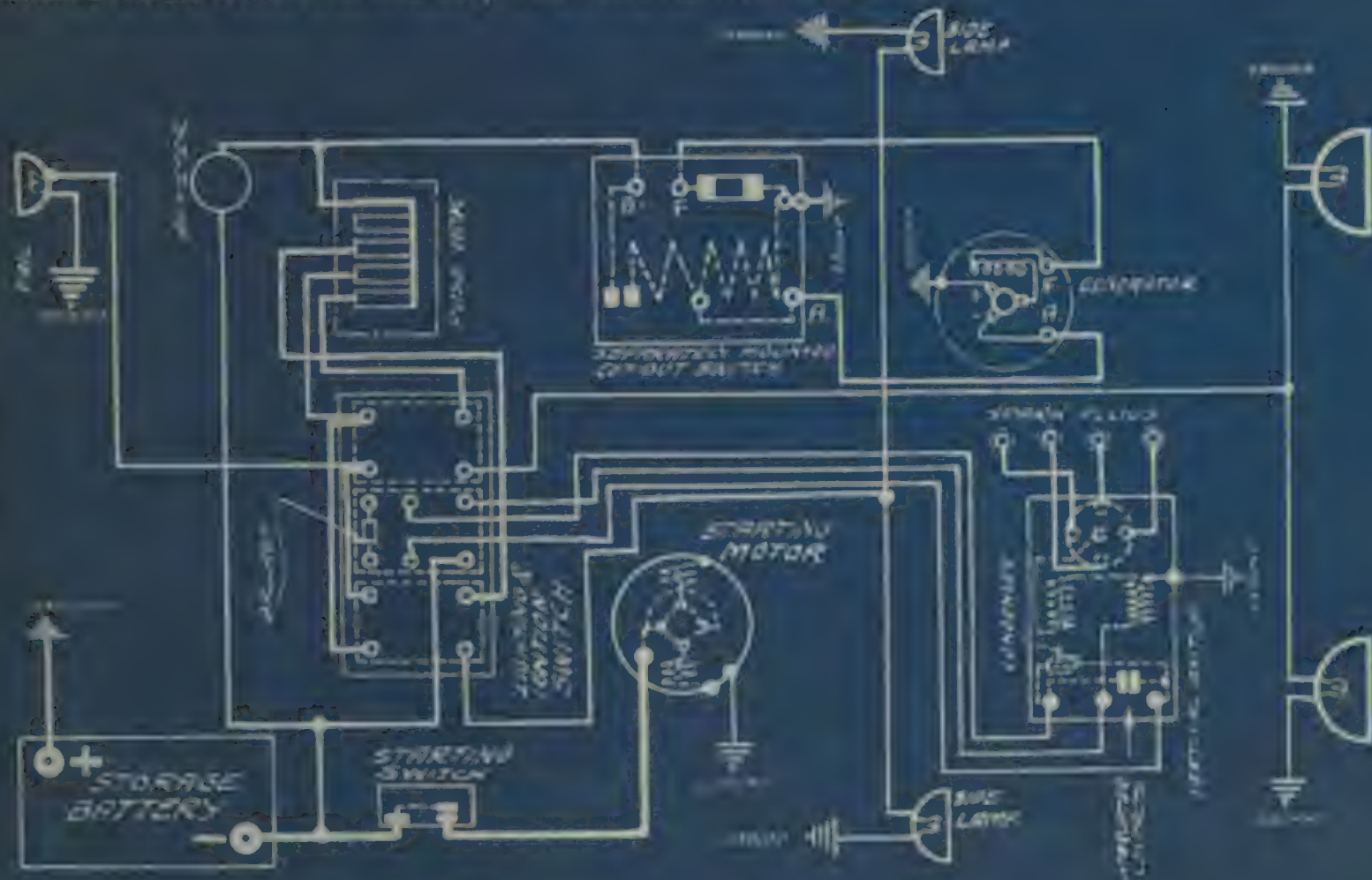




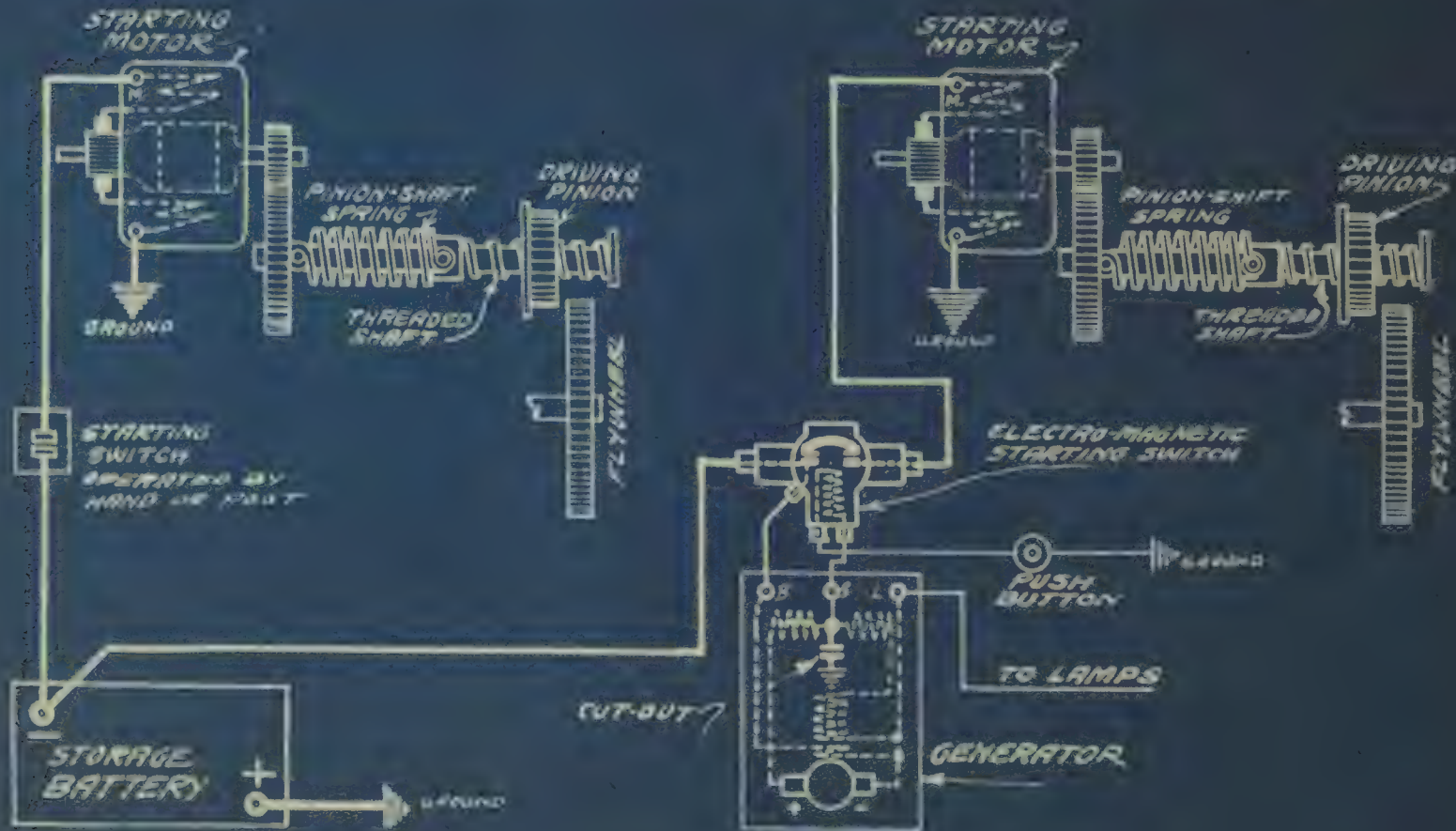
# WESTINGHOUSE STANDARD WIRING

FROM WESTBA 320507

SHOWING SINGLE REACTION MOTOR & VERTICAL IGNITION SYSTEM



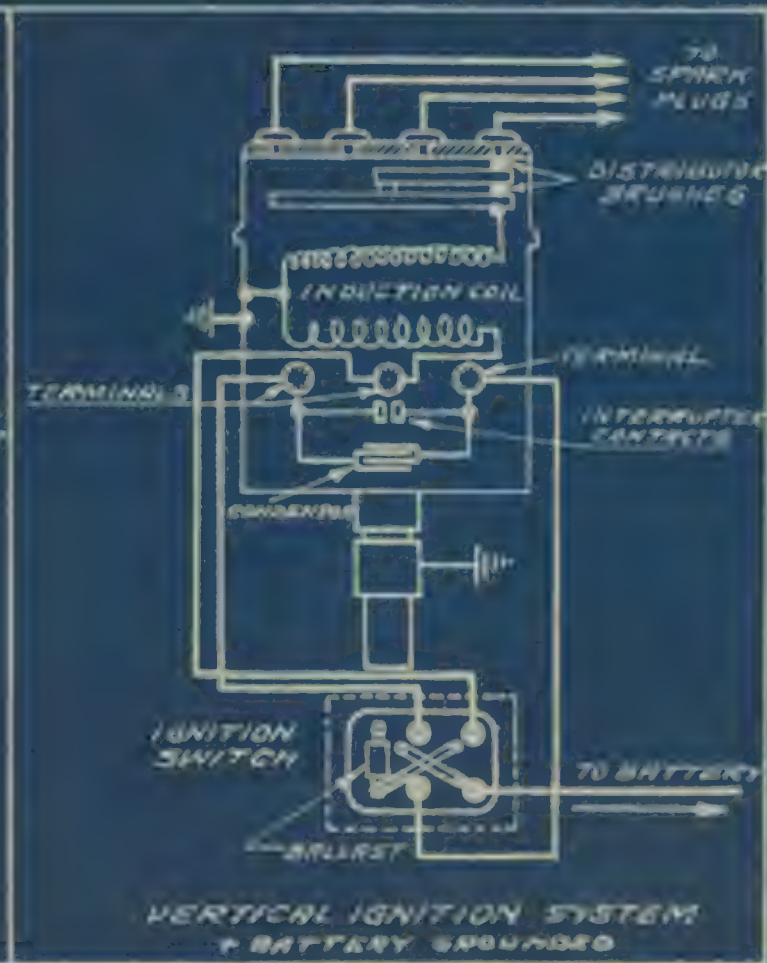
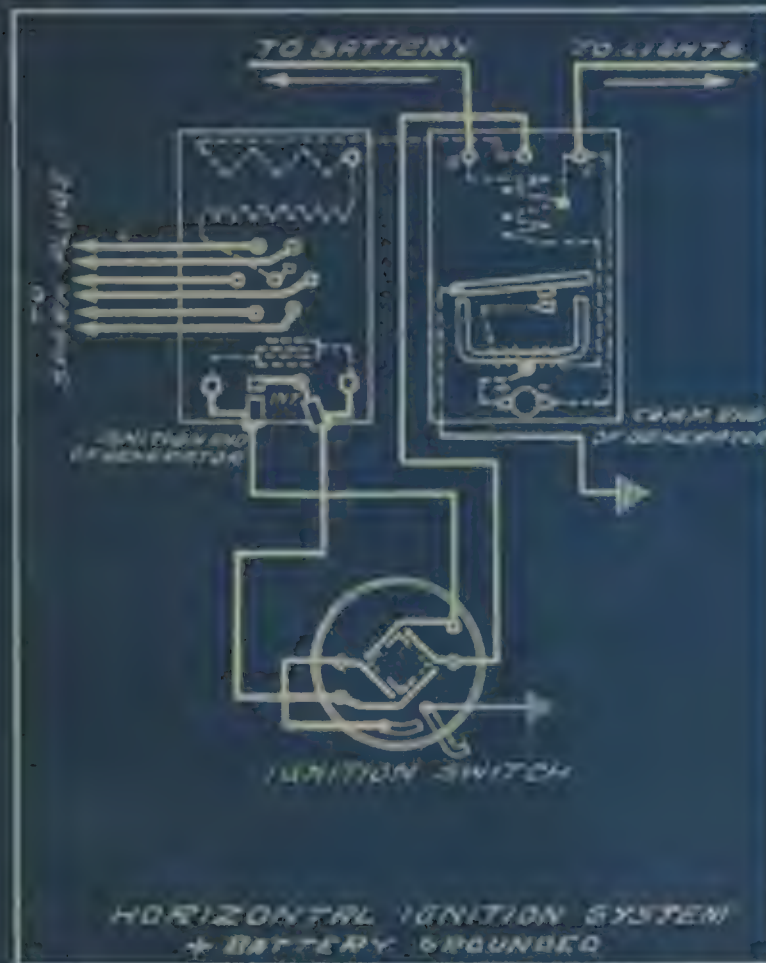
# WESTINGHOUSE - INTERNAL WIRING AND MECHANICAL CONNECTIONS OF DOUBLE-REDUCTION MOTORS AND SWITCH FOR AUTOMATIC SCREW PINION SHIFT - FROM WEST. INST. BN. 5143



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CHICAGO, U.S.A.

# WESTINGHOUSE INTERNAL IGNITION CIRCUITS

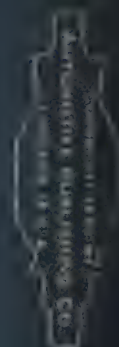
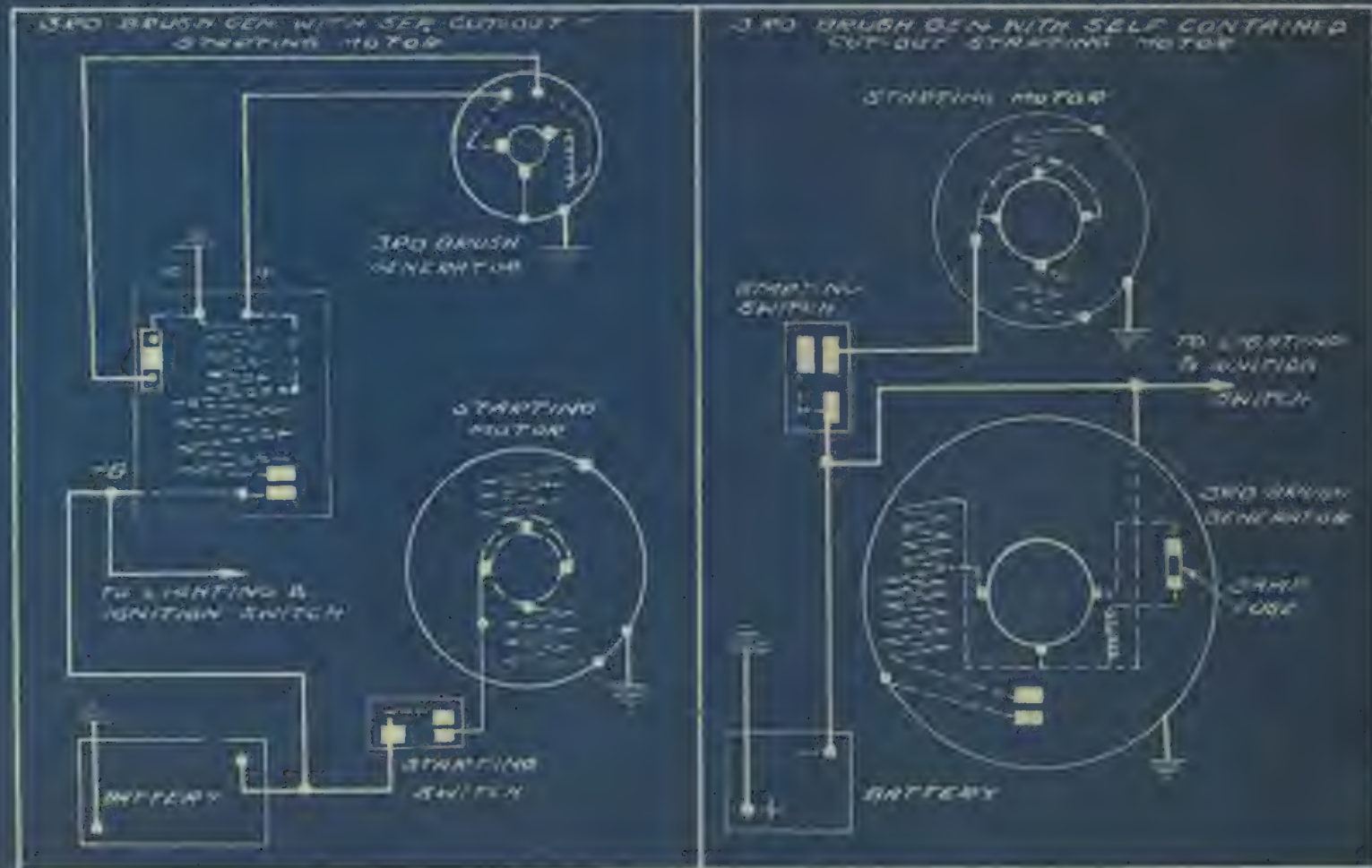
FROM WEST. INST. 845.5160-925140C





# WESTINGHOUSE INTERNAL CIRCUITS

FROM SKETCH BY R. G. P.



# WESTINGHOUSE INTERNAL CIRCUITS

GENERATOR FRAME NO. 153 & 750

(R.H. ROTATION)

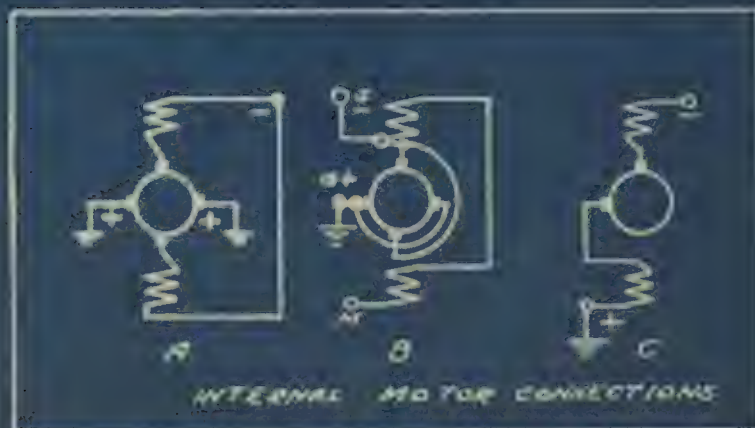
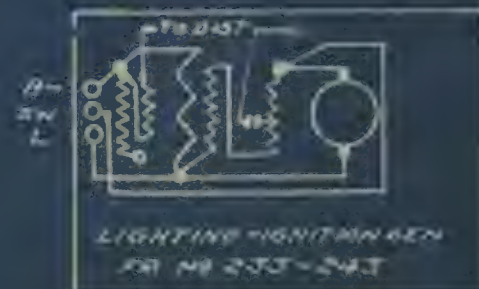
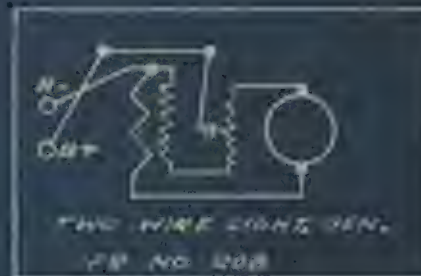
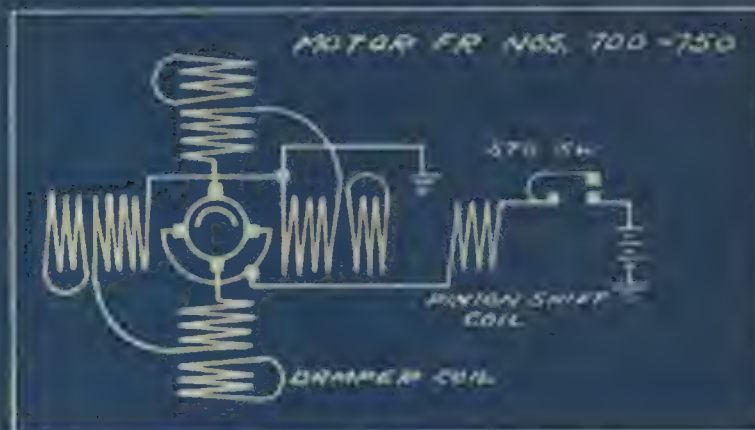
FROM SKETCH BY H.T.P.



DIAGRAM OF CONNECTIONS FOR COUNTER-  
CLOCKWISE ROTATION FACING COMM. END  
WITH CUR. TYPE MOTOR.

# WESTINGHOUSE INTERNAL CIRCUITS

FROM WEST MANUAL



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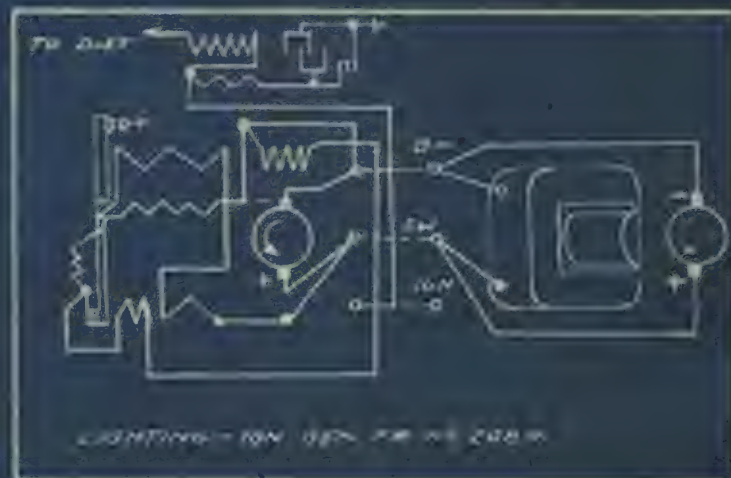
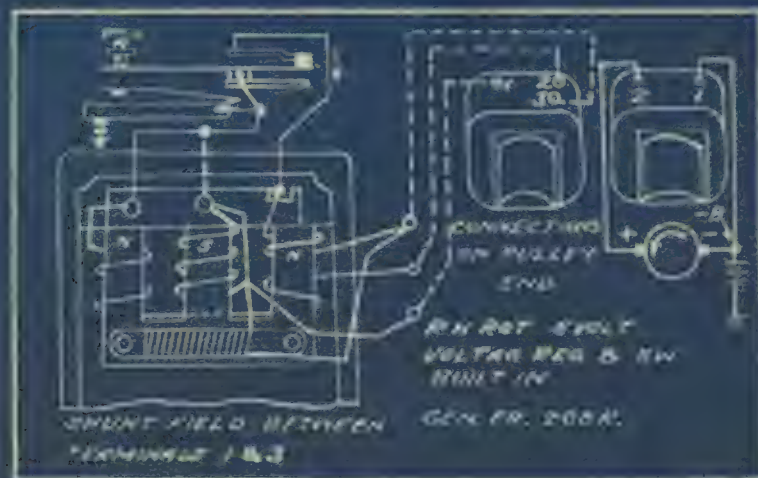
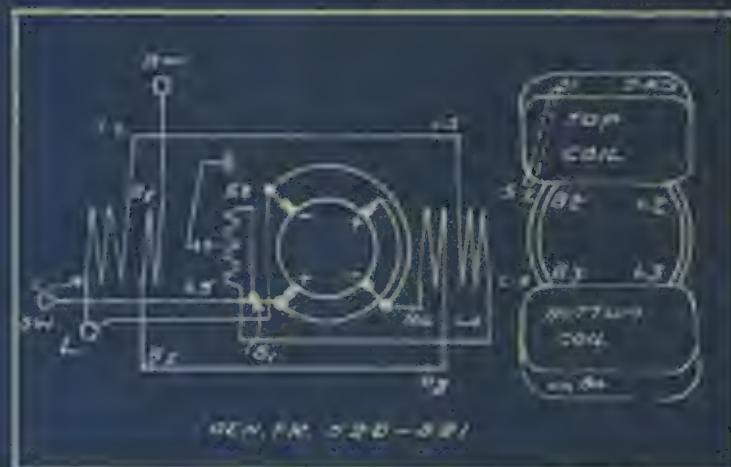
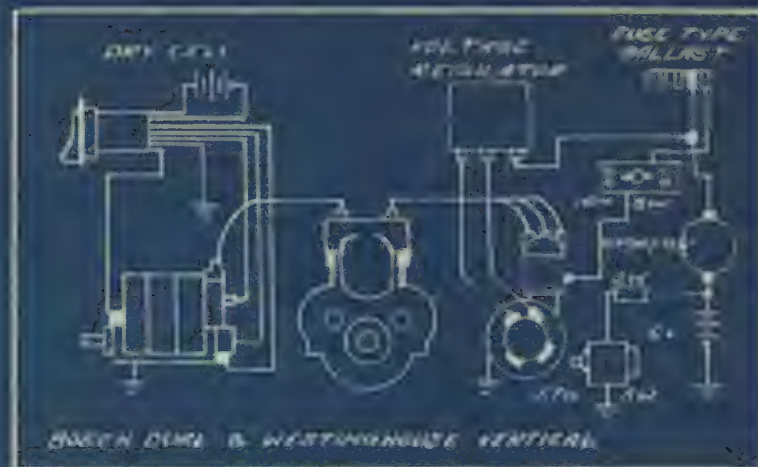
# WESTINGHOUSE INTERNAL CIRCUITS

FROM WESTINGHOUSE



# WESTINGHOUSE INTERNAL CIRCUITS

FROM THE WESTINGHOUSE



S. WESTINGHOUSE & CO. PITTSBURGH, PA.

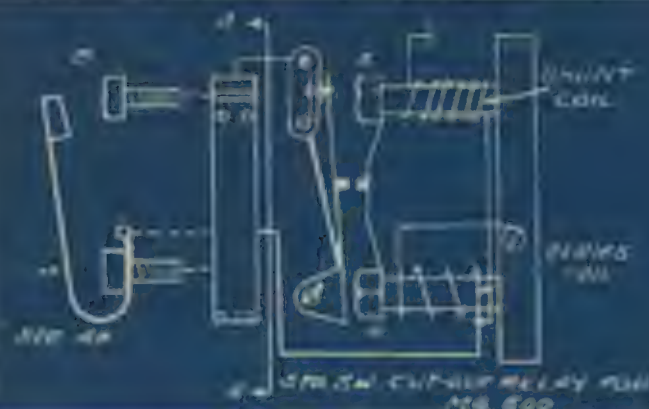
# WESTINGHOUSE INTERNAL CIRCUITS

FROM WESTMAN/IL



250-AMP CUT-OUT RELAY

WESTINGHOUSE CO. PAT. 1,000,000



250-AMP CUT-OUT RELAY FOR  
NO. 500



CASE TO BE REBOUNDED 250-AMP &  
CUT-OUT RELAY NO. 500

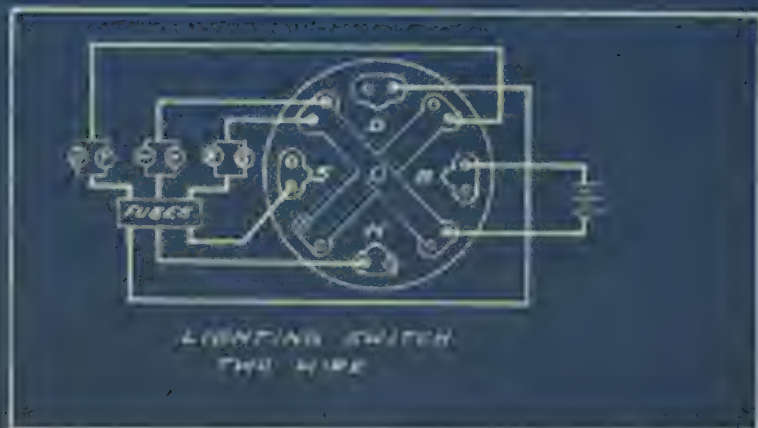
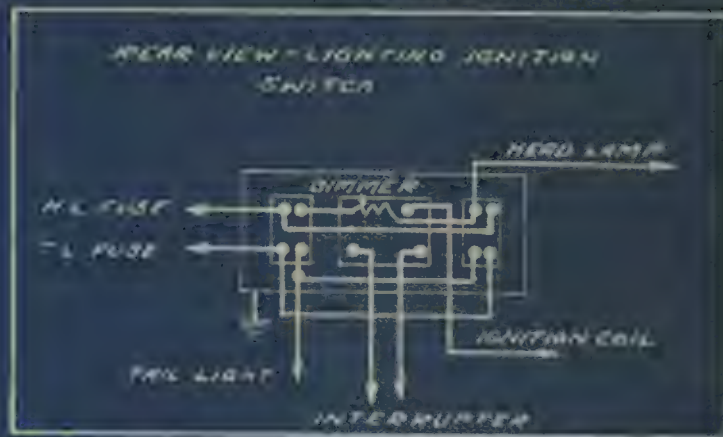


WIRING DIAGRAM  
MAGNETIC PUSH BUTTON  
APPROXIMATELY LOCATED



# WESTINGHOUSE INTERNAL CIRCUITS

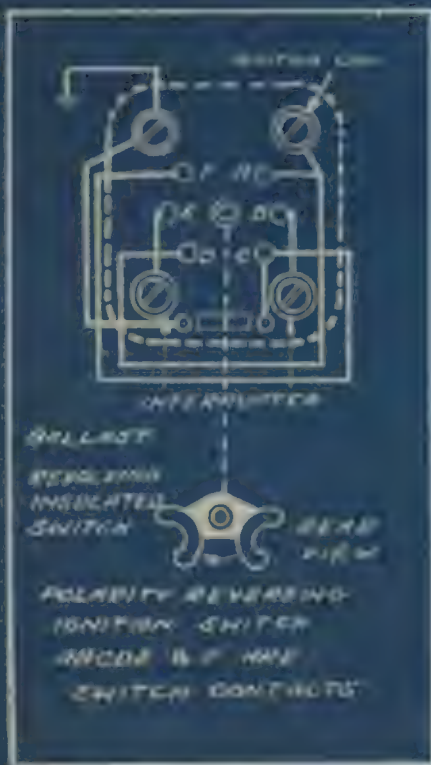
FROM WESTINGHOUSE



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# WESTINGHOUSE INTERNAL CIRCUITS

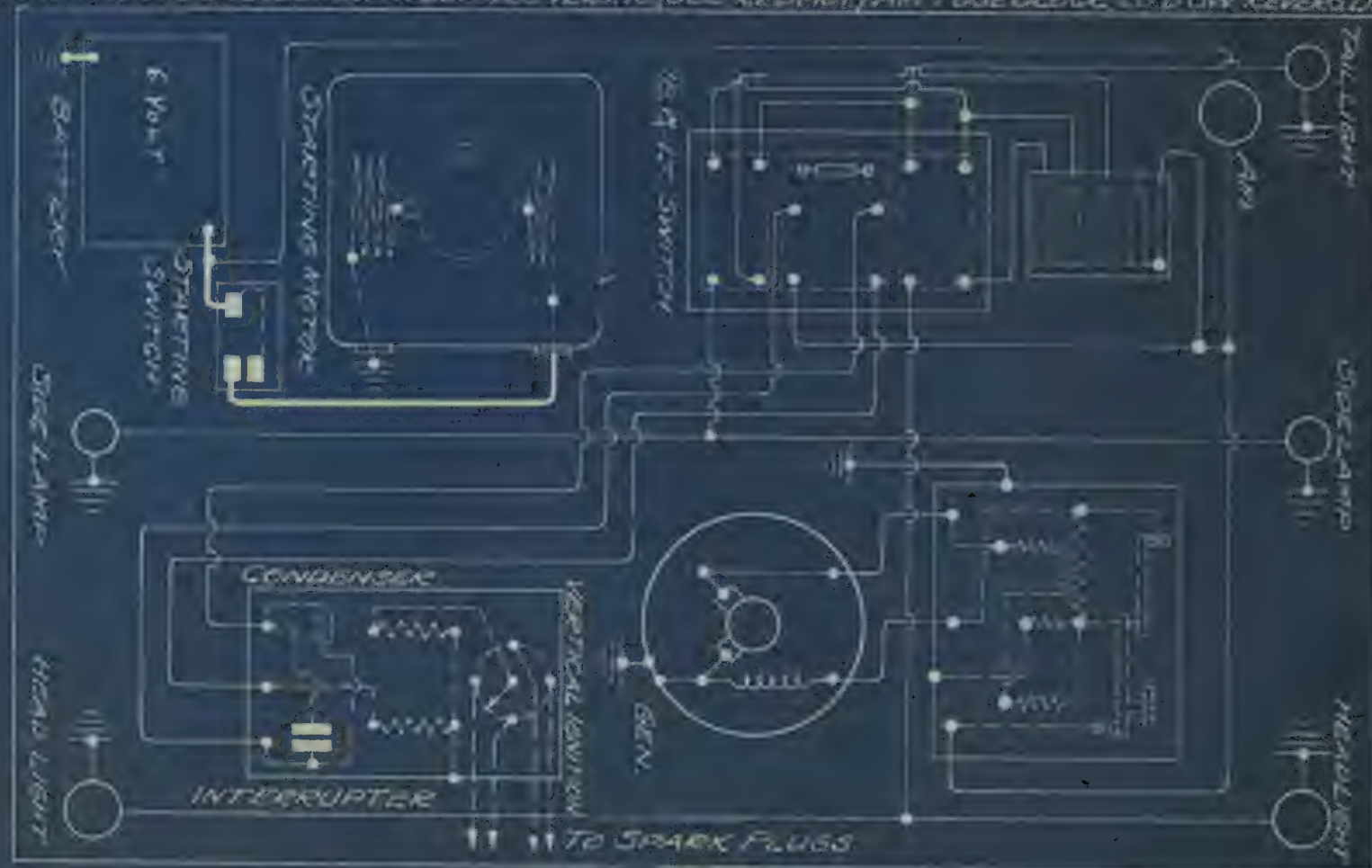
FROM WEST MANUAL



# WESTINGHOUSE INTERNAL CIRCUITS

FROM 1914 TO 1924

CONNECTION OF R.O. GEN. WITH SERIES VENT. (50L. RES. MET.) AM. FUSE BLOCK, STD. SW. REVERS. LIGHT SW.



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# WESTINGHOUSE INTERNAL CIRCUITS

CONNECTION 100-0 TO ACTION LIGHT 150V. 20 AMP. 10 A. 15 SWITCH. AM. & FUSE BLOCK



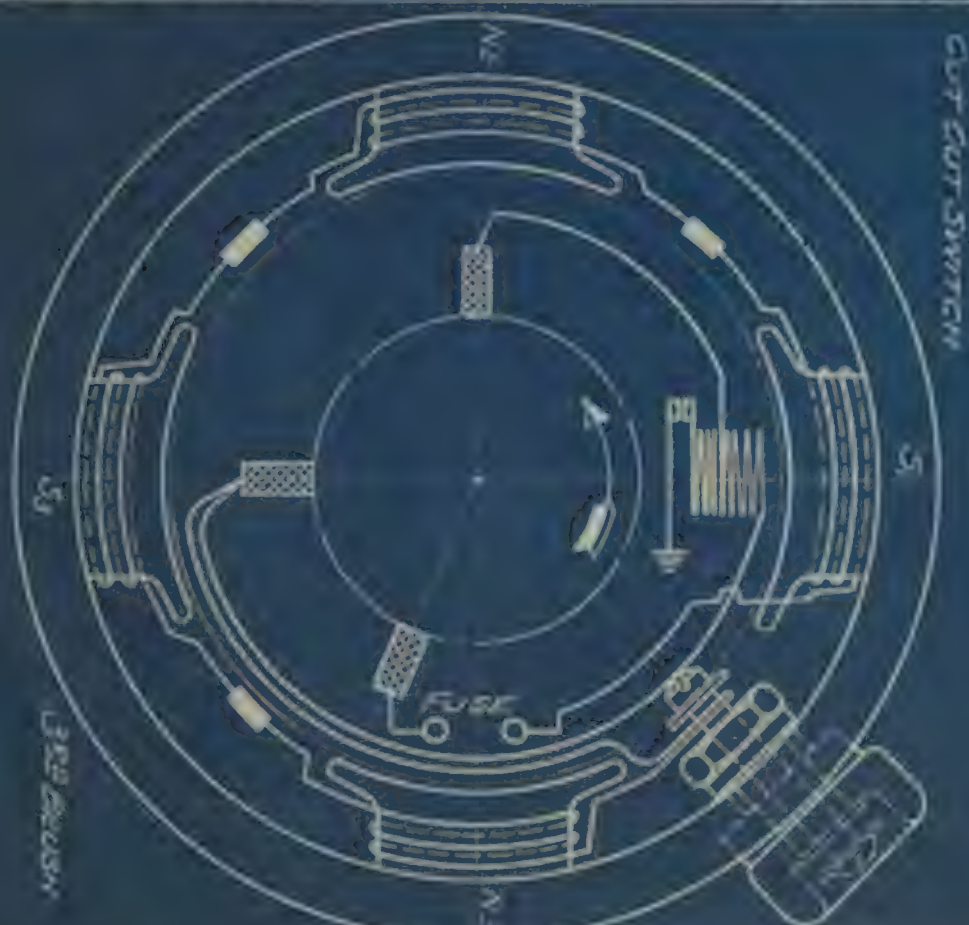


# WESTINGHOUSE INTERNAL CIRCUITS

FROM FIELD PATENT

AUTOMOBILE LIGHTING & IGNITION SYSTEM - DIAGRAM OF CONNECTIONS - R.H. ROTATION

DIAGRAM OF CONNECTIONS FOR GENERATOR -  
ELECTRIC IGNITION SYSTEM CONTAINING  
FOR CUT-OUT SWITCH & THIRD BRUSH  
1 - START OF INSIDE END  
2 - FINISH OF OUTSIDE END

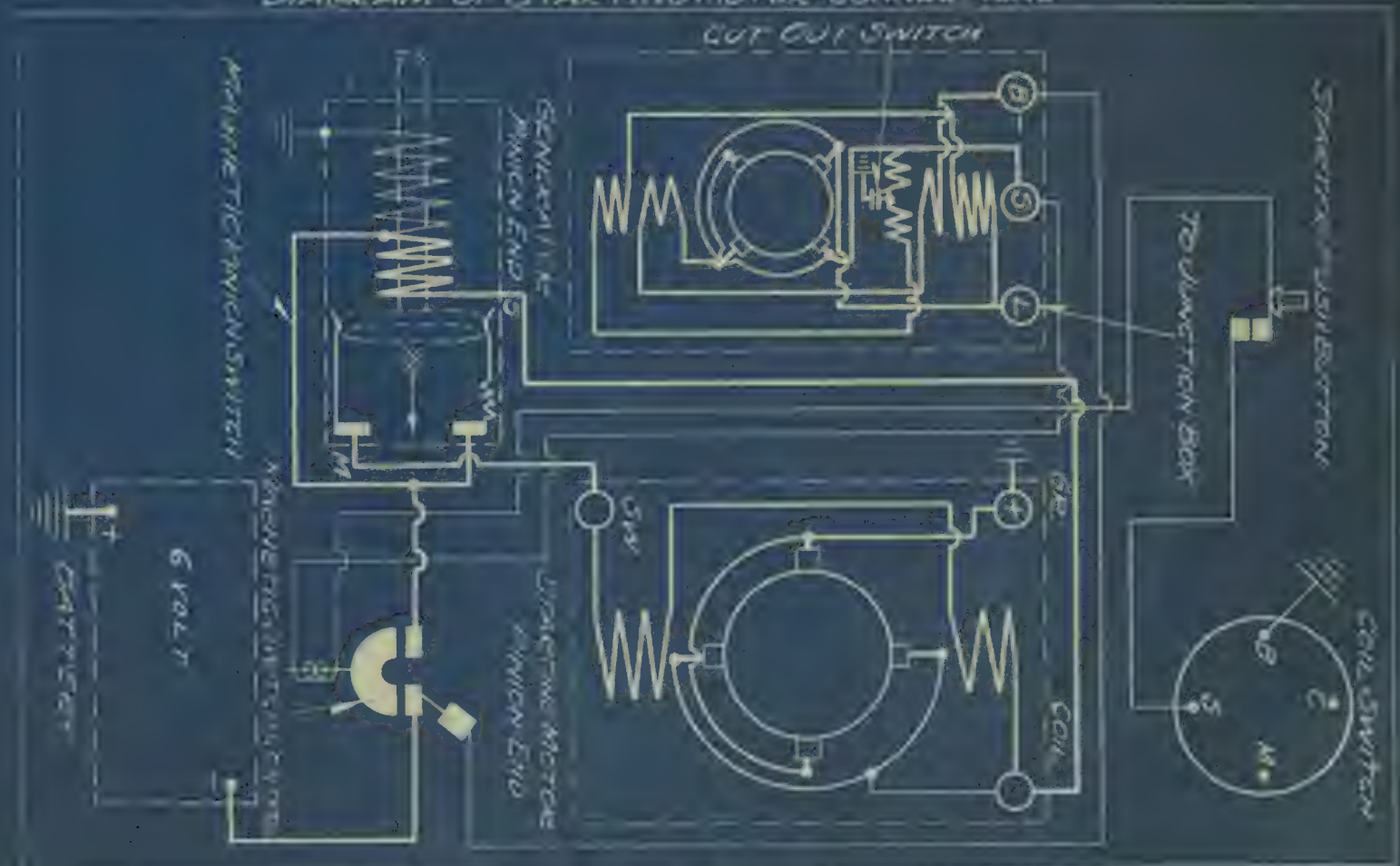




# WESTINGHOUSE INTERNAL CIRCUITS

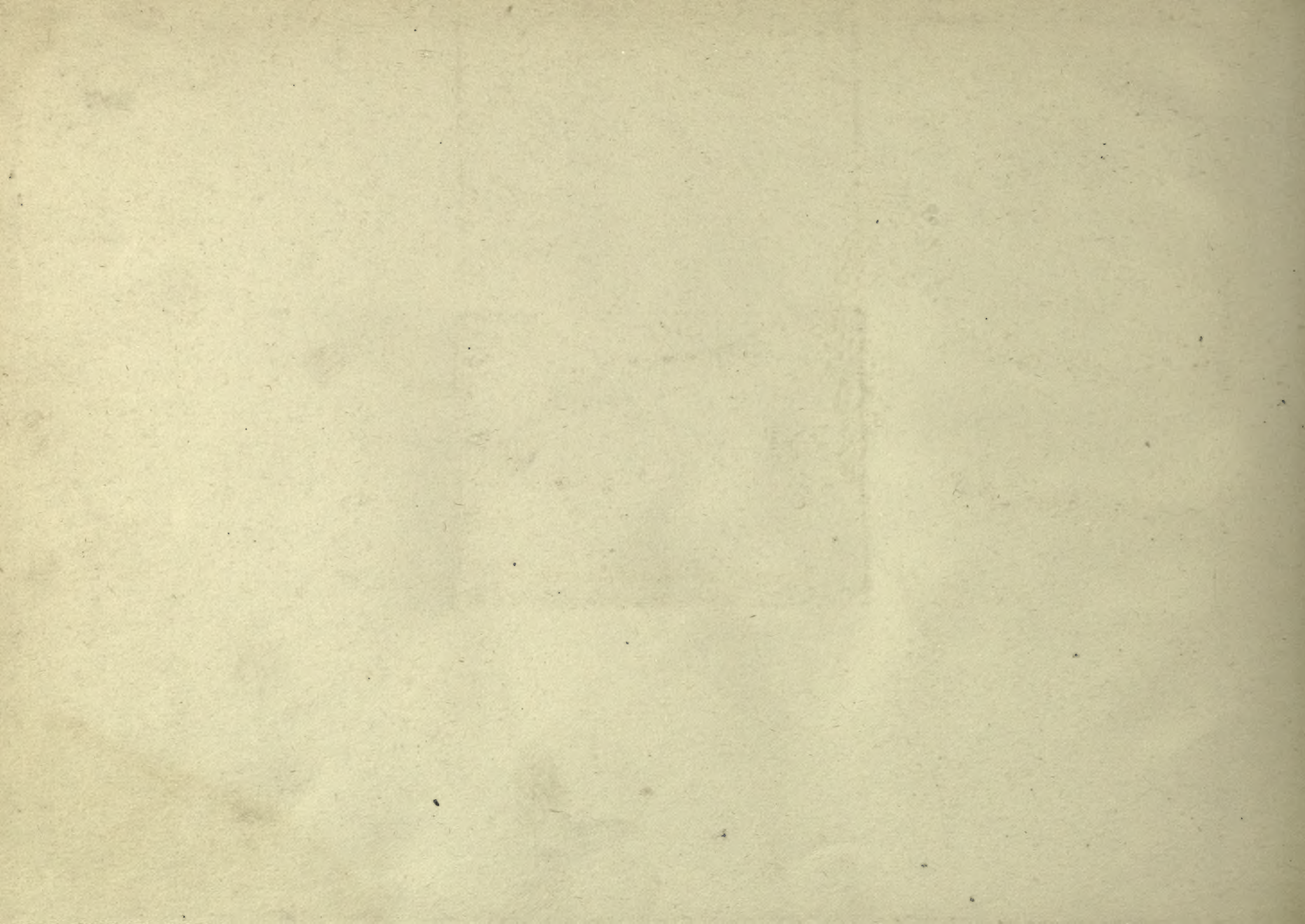
FROM PAPER D/P 4042, 34196

DIAGRAM OF STARTING MOTOR CONNECTIONS











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